2N® NetSpeaker

IP Audio System

Manual

Version 1.3

www.2n.cz

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The product family developed by 2N TELEKOMUNIKACE a.s. includes GSM gateways, private branch exchanges (PBX), and door and lift communicators. 2N TELEKOMUNIKACE a.s. has been ranked among the Czech top companies for years and represented a symbol of stability and prosperity on the telecommunications market for almost two decades. At present, we export our products into over 120 countries worldwide and have exclusive distributors on all continents.

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Declaration of Conformity

2N TELEKOMUNIKACE hereby declares that the 2N® IP Audio System product complies with all basic requirements and other relevant provisions of the 1999/5/EC directive. For the full wording of the Declaration of Conformity see the CD-ROM enclosed and at www.2n.cz.

The 2N TELEKOMUNIKACE company is the holder of the ISO 9001:2009 certificate. All development, production and distribution processes of the company are managed by this standard and guarantee a high quality, technical level and professional aspect of all our

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1. User manuals

This section provides with basic information on **2N® IP Audio System** as well as with quick start guide and with manual for **2N® NetSpeaker** hardware.

In this section:

- 1.1 Introduction
- 1.2 Quick Start
- 1.3 HW Configuration Manual

1.1 Introduction

IP Audio System – 2N® NetSpeaker

2N® NetSpeaker is an IP audio system which allows you to play an acoustic message or any other audio stream from any LAN/WAN–connected PC. All you have to do to get a virtual broadcasting exchange is connect a standard loudspeaker or amplifier to your **2N® NetSpeaker**. The virtual exchange helps you play any audio system and create separate zones with different communication contents. You can make use of your existing LAN/WAN while installing your **2N® NetSpeaker** system to save the total implementation time and, of course, cut your wiring costs.

The **2N® NetSpeaker** IP Audio System consists of two basic components – a server and an audio converter. The ControlPanel software has been developed to configure the whole broadcasting system. Console and Player are software products designed for everyday use – broadcasting messages via a microphone and easy music playing respectively. Moreover, you can use the Android application for basic operations.

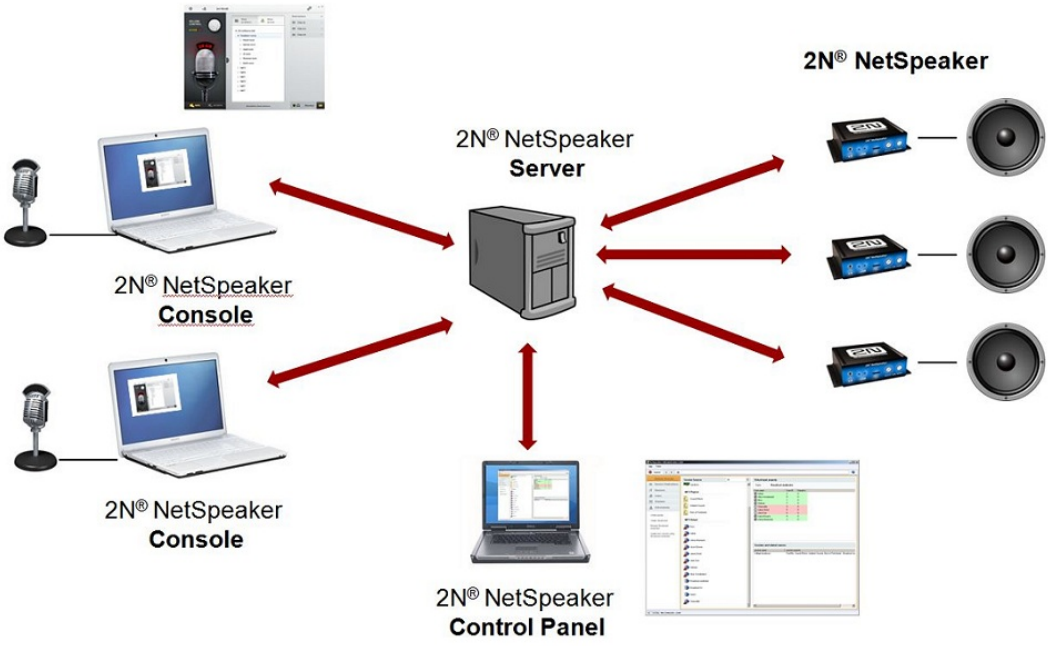

Figure: 2N® NetSpeaker System Layout

Refer to the 1.1 Introduction section for basic information on quick system installation and ControlPanel connection to the 2N® NetSpeaker Server.

1.2 Quick Start

What you should know

- **2N® NetSpeaker Server** requires administrator rights for installation.
- Firewall may block the **2N® NetSpeaker Server**.
- Virtual Network adapters may cause malfunction of NetSpeaker scanner.

Quick Start Manual

Despite being a robust application for administration of a high number of (loud)speakers, **2N® NetSpeaker** can be ready for playing in a few minutes. The purpose of the Quick Start manual is to provide easy installation and quick launch of one playing. Just follow the quick steps below.

Box Contents

In addition to mounting accessories, the box includes the **2N® NetSpeaker** unit and this Quick Start manual. Refer to www.2n.cz for the latest NetSpeaker control and playing software version. **Check the box contents before starting!**

Installation Preparation

You need your **2N® NetSpeaker** unit, a 12V/2A power supply or PoE switch, the UTP cable and a PC or server for installation.

Installation

2N® NetSpeaker Server and **2N® NetSpeaker** ControlPanel software installation:

- Launch the **2N® NetSpeaker Server** installer on the PC used as the server.
- Launch the **2N® NetSpeaker** ControlPanel installer on the PC used for control of the server.

Having installed the **2N® NetSpeaker Server**, you will be invited to restart the PC.

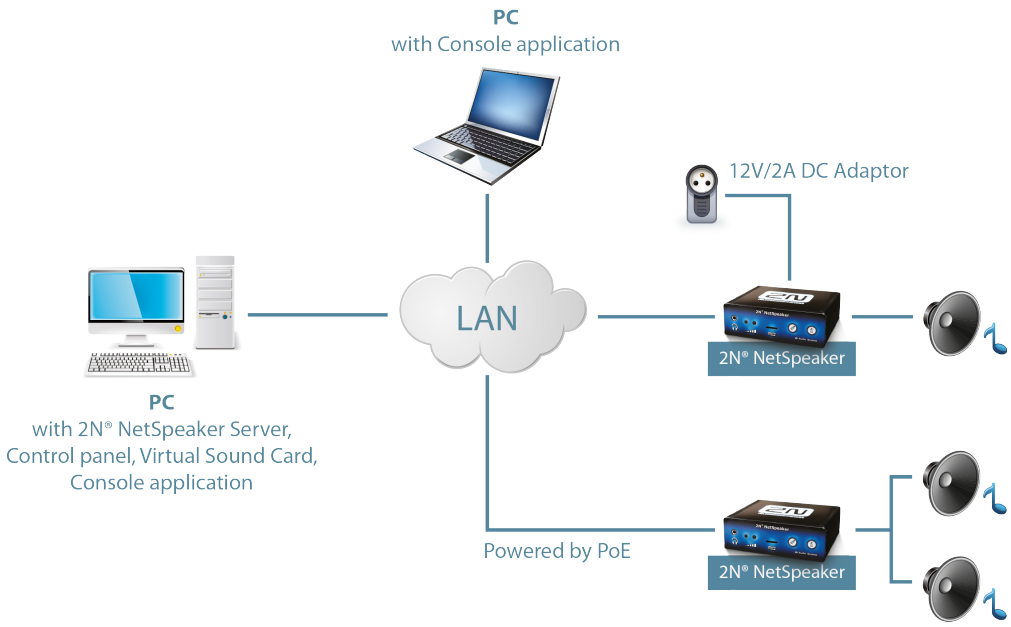

Figure: 2N® NetSpeaker system in network environment

2N® NetSpeaker Connection and Playing

Set your **2N® NetSpeaker** system and prepare playing following the instructions and figures below.

1) Connect the speakers to the network and switch on power. You can find the HW manual here.

2) Launch the ControlPanel (default login data: name:Admin, without password).

3) Connected NetSpeakers are shown in tab **Destinations & Zones** where you can create the Zone structure. In specific network settings NetSpeakers are not shown in this tab and further settings are necessary which can take place in **Administartor** -> NetSpeaker Scanner settings .

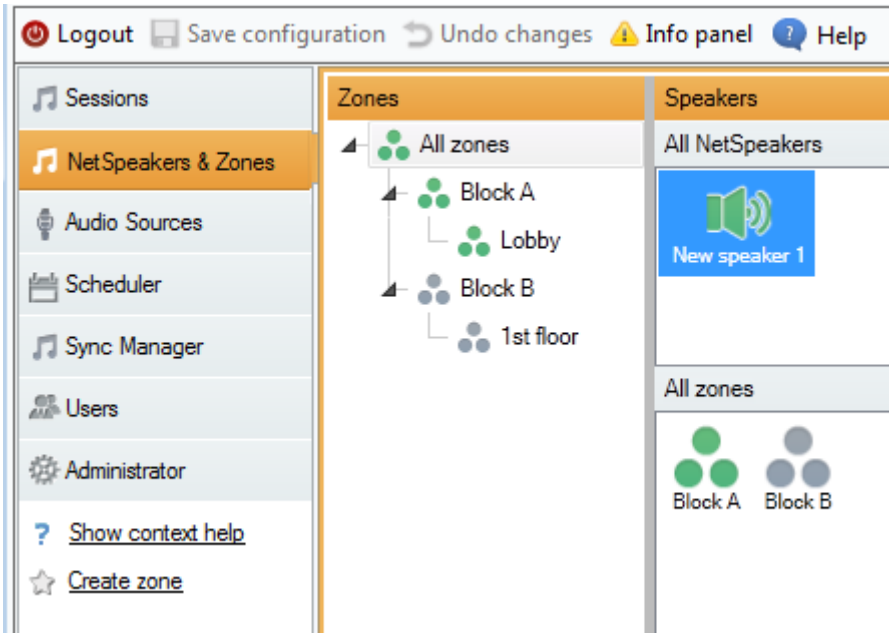

Figure: Adding Speaker to Zone

4) Create a new source and add the audio files, a playlist, e.g., in **2.3 Audio Sources**.

5) Create a new session and add a playlist and Zone to the session using the drag&drop function in **2.1 Sessions**.

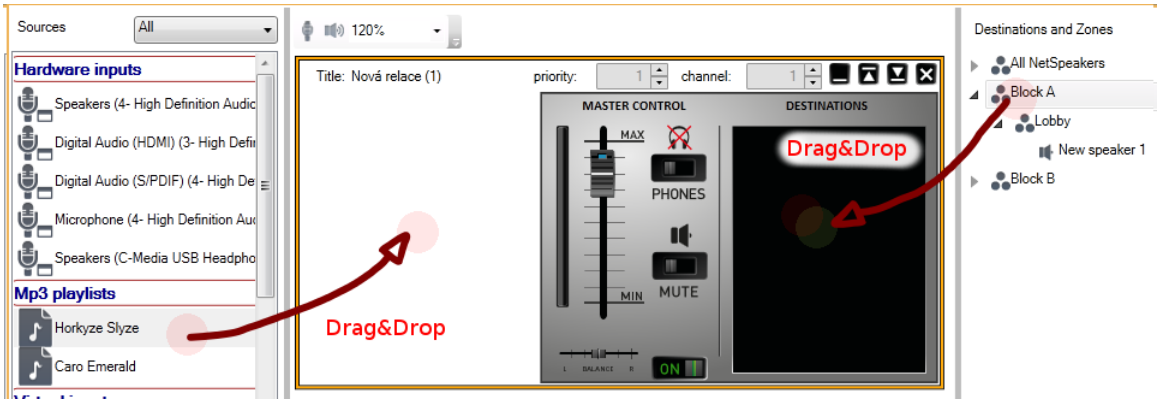

Figure: Creating Session

6) Push the **ON** buttons to activate the session and start playing.

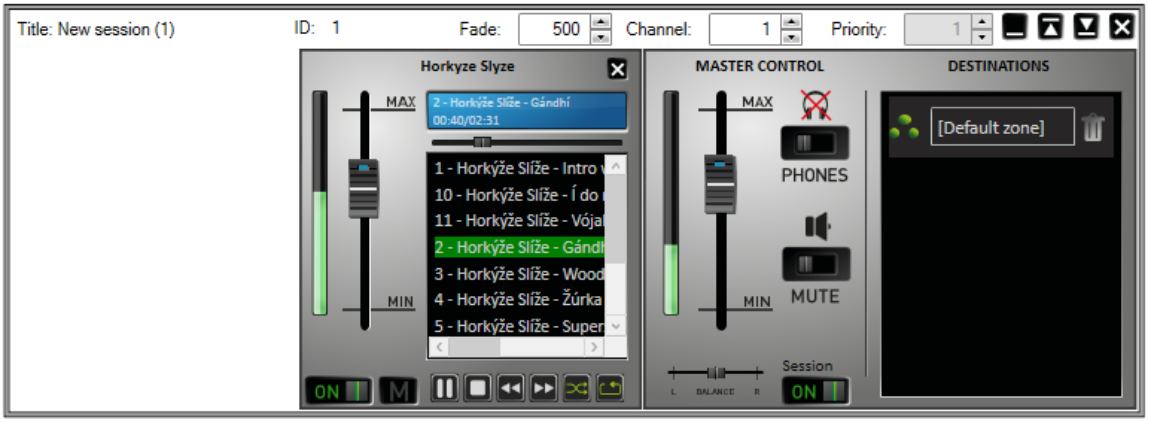

Figure: Outcome

2N® TELEKOMUNIKACE a.s. hereby declares that this product complies with all basic requirements and other relevant provisions of the 1999/5/EC directive. For the full wording of the Declaration of Conformity see www.2n.cz.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

1.3 HW Configuration Manual

2N® NetSpeaker Components

Figure: 2N NetSpeaker – Basic Unit 914010E 2N® NetSpeaker with Amplifier

Accessories:

- PoE Injector 91378100
- 12V DC/2A Adapter 914102E
- Remote Controller 914101E

Description and Installation

Product Description

2N® NetSpeaker is a LAN audio converter designed for public sound distribution through the **2N® NetSpeaker** System. It is connected to the **2N® NetSpeaker** Syste m via the local area network (LAN). It communicates with the **2N® NetSpeaker Server**, receives the audio stream, decodes it and converts it into an analogue signal. **2N® NetSpeaker** is equipped with an integrated 14W amplifier for direct loudspeaker connection. **2N® NetSpeaker** can be controlled by two front panel buttons or an infrared remote controller. **2N® NetSpeaker** is equipped with a digital input and output, which extend the converter options and may be helpful in special applications. **2N® NetSpeaker** helps you extend the internal FLASH memory using MicroSD memory cards. Use the integrated Telnet server to make basic settings for connection of **2N® NetSpeaker** into the LAN (refer to the Basic Parameter Settings). Apply the **2N® NetSpeaker** Software for configuration and use of all functions (refer to the **2N® NetSpeaker** Software User Manual).

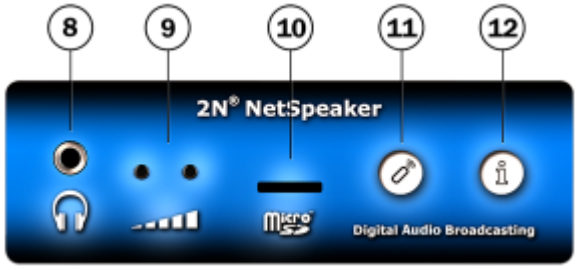

Figure: 2N® NetSpeaker Front Panel

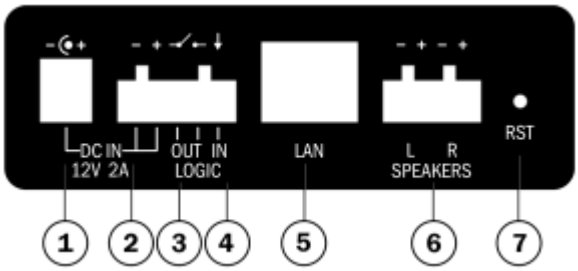

Figure: 2N® NetSpeaker Back Panel

1. 12V DC/2A power supply adapter connector
2. Alternative power supply connection terminals
3. Relay output with galvanic isolation for external 24V/1A AC/DC load switching
4. Digital input (without galvanic isolation) for external sensor/button, etc.
5. 10/100BASE–TX LAN RJ–45 connector
6. Integrated amplifier output terminals for 1 or 2 loudspeakers
7. RESET button
8. Headphone/line output for standard headphones/external amplifier
9. Universal buttons with programmable functions
10. MicroSD card slot for higher internal memory capacity
11. Infrared signal receiver for remote control
12. Operational status colour LED indicators

2N® NetSpeaker Parameters

Parameter	Value
Dimensions	105 x 34 x 86 mm
Dimensions (incl. L–profiles)	130 x 34 x 86 mm
Weight	300 g

External power supply	12V DC / 2A
LAN supply	PoE IEEE 802.3af

Status signalling	1 RGB LED on front panel
Local control	2 buttons on front panel
Remote control	1 infrared sensor on front panel

LAN connection	RJ–45 connector on back panel	TX with Auto–MDIX function
Power amplifier output	4 terminals on back panel	STEREO/MONO with auto detection

Frequency range	20Hz – 20kHz (+/– 0.5dB)
Harmonic distortion	0.05% @ 1kHz
Signal–to–noise ratio	91dB

Headphone/Line output	STEREO 3.5mm jack on front panel

Digital output	24V 1A AC/DC relay output, galvanically isolated
Digital input	5 to 24V DC digital input, galvanically non–isolated

Memory capacity extension	MicroSD card slot on front panel

Sound compression	MPEG–2 Audio Layer III (MP3)
Bandwidth	32–320kbps

Caution

- Be sure to connect the **2N® NetSpeaker** power supply as the last step. The same applies to PoE supply from the LAN.

Installation

If you intend to use your **2N® NetSpeaker** unit in various interiors, please stick the four feet included in the delivery onto the bottom side of the device to avoid scratching of the underlying surface.

Surface Mounting:

Use the included L–profiles to mount your **2N® NetSpeaker** unit on a wall or another solid surface. Insert the L–profiles in the sides of the assembly and fit them with four screws to keep the device in place. You can use the dowels and screws included in the delivery. Follow the instructions below while drilling the mounting holes.

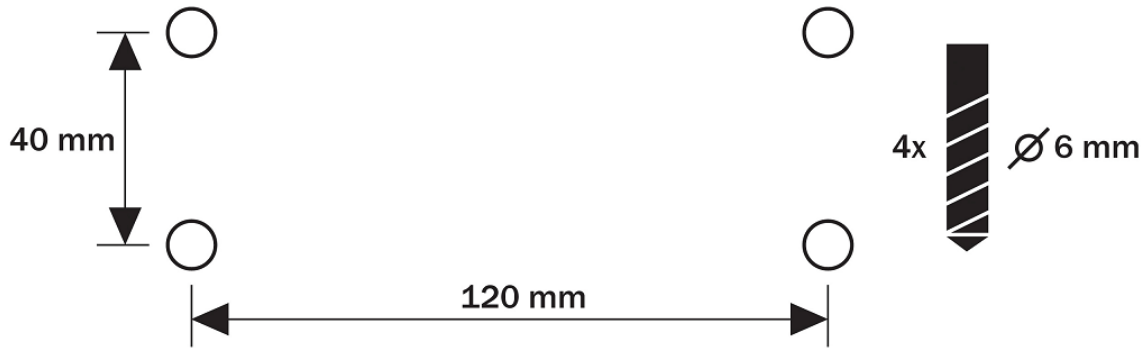

Figure: Mounting holes

- Electric Installation
- Electric Installation Step by Step

It is very easy to connect **2N® NetSpeaker** electrically. Follow the steps below to avoid equipment damage or electrical injury:

1. Connect a loudspeaker, headphones or an external amplifier.
2. Connect the digital input and output.
3. Insert the MicroSD card.
4. Connect the UTP cable.
5. Connect a 12V power supply (unless PoE is used).

Loudspeakers

Loudspeaker connection

2N® NetSpeaker is equipped with a power amplifier for 1 (MONO) or 2 (STEREO) loudspeakers. The loudspeakers to be used must have the nominal impedance of 4Ω–16Ω. Possible configurations and related maximum power outputs (sinus, THD < 1%) are included in the table below:

Loudspeaker	12V/2A Supply	PoE Supply
2 x 4Ohm STEREO	2 x 2.5W	2 x 2.5W
2 x 8Ohm STEREO	2 x 7W	2 x 4W
2 x 16Ohm STEREO	2 x 4W	2 x 4W
4Ohm MONO	1 x 14W	1 x 8W
8Ohm MONO	1 x 8W	1 x 8W

Use the **2N® NetSpeaker** back panel terminals marked L + and L – for the left channel and R + and R – for the right channel. Use the left channel terminals for the MONO mode.

Headphone/External amplifier connection

2N® NetSpeaker is equipped with a headphone/external amplifier connector. The 3.5mm jack is available on the front panel.

Digital Input and Output

2N® NetSpeaker is equipped with a relay switch for light signalling/external amplifier/alarm/activation. The **output** is available on terminals marked LOGIC OUT and allows for switching of up to 24V/1A AC/DC loads.
Program the output either to the N/O (normally open) or N/C (normally closed) mode.

Warning Do not exceed the upper voltage and current limits to avoid irreversible damage of the equipment.

2N® NetSpeaker is equipped with a digital **input** for an optional button, sensor of movement or other applications. This input is available on the LOGIC IN terminal. Up to 5 to 24V DC voltage can be applied to the input against the ground terminal marked DC IN –.

Warning Do not exceed the maximum voltage values (24V) applied to the LOGIC IN input to avoid irreversible damage of the equipment.

Note

Memory Card

2N® NetSpeaker is equipped with a MicroSD card slot for storing music or voice in case the equipment is not connected to the LAN permanently or temporarily. The MicroSD card slot is available on the **2N® NetSpeaker** front panel.

NetSpeaker status indactor (LED)

LED's Colour	LED's Status	Meaning
Blue		NetSpeaker is ready
White		NetSpeaker is playing stream from session
Violet		NetSpeaker is playing audio from SD card
Green		NetSpeaker is booting
Yellow	flashing	NetSpeaker is booting with factory default settings
Blue	flashing	NetSpeaker is synchornizing with server (SD card content, settings)

2N® NetSpeaker Connection and Configuration

Power Supply Connection

2N® NetSpeaker can be connected to a standard local area network using a LAN interface via the RJ–45 connector on the back panel. Always use CAT–5d or higher class cables for reliability reasons. The LAN interface is equipped with the Auto MDIX function for automatic detection of a straight or cross–over cable.

The LAN interface can also be used for the **2N® NetSpeaker** power supply through active network elements or injectors meeting the IEEE 802.3af standard.

Note: With PoE, the integrated amplifier power output is limited to 8W. To utilise the maximum power output of the amplifier, feed **2N® NetSpeaker** from an external 12V DC/2A power supply.

2N® NetSpeaker can be fed using active network elements or PoE injectors via the LAN interface. In case this option is unavailable, use a 12V DC/2A (Part No. 914102E) power supply, or another power supply on condition that you keep the nominal values included in the Electric Parameters subsection.

Connect the 12V DC power supply either to the back panel supply connector marked DC IN, or terminals marked DC IN + and DC IN –.

Warning If you use an adapter other than the recommended one, do not exceed the nominal supply voltage value of 12V. Also make sure that the supply voltage polarity is correct. Exceeding nominal values and/or incorrect connection may lead to irreversible damage of the equipment.

2N® NetSpeaker Configuration

In some cases, it may be useful to reset the **2N® NetSpeaker** factory values using the RESET button on the back panel. Do this, for example, if **2N® NetSpeaker** ceases to respond, which may be caused by incorrect LAN settings, LAN configuration changes, forgotten password and so on.

Resetting Procedure:

1. Use a thin rigid tool (a toothpick or a paperclip) to press the RESET button on the back panel.
2. Keep the RESET button pressed as long as the front panel LED is shining green (approx. for 10s).
3. Release the button as soon as the LED starts flashing yellow quickly. It means that the configuration in the internal FLASH memory is being deleted.

This operation takes about 50s. Do not disconnect the device from power supply during this period.

Factory Settings:

By default, the parameters have the following factory values:

Parameter Name	Default Value
activemode	1 (ON)
searchmode	1 (ON)
volume	1024
domain	domain
dscr	MAC address
dhcpclient	0 (OFF)
ipaddr	192.168.1.100
netmask	255.255.255.0
defaultgw	192.168.1.1
pwd	admin
srvipaddr	192.168.1.2
srvport	6999
srvpwd	admin

Basic parameter settings

Use the integrated Telnet server for basic **2N® NetSpeaker** settings. For connection, use any Telnet Client application downloaded from the Internet, for example. The Telnet server listens at standard port 23.

When the connection has been established, **2N® NetSpeaker** displays its serial number and the current firmware version. Enter the password, which is equal to the connection authorisation password from the **2N® NetSpeaker Server** (i.e. pwd parameter). The default password is admin.

Telnet Commands to **2N® NetSpeaker**

2N® NetSpeaker can be controlled using the commands included in the table below.

Enter LC characters only, separate parameters, if any, with a space and confirm every row with Enter.

help	This command displays the list of available commands
set (parameter)(value)	This command sets the parameter to a selected value. Example: set dhcpclient 1
get (parameter)	This command displays the current parameter value. Example: get dhcpclient
print	This command writes out all parameters including values.
save	This command saves all parameters changes into the 2N® NetSpeaker memory.
exit	This command quits connection with the Telnet server.
reboot	This command resets the equipment.

List of parameters

- activemode
  - **2N® NetSpeaker** is connecting actively to the **2N® NetSpeaker Server**. Remember to set the srvipadr and srvport parameters correctly if 1 is selected.
  - Setting options

0	**2N® NetSpeaker** passive mode. The server connection is initiated by the **2N® NetSpeaker Server**.
1	**2N® NetSpeaker** active mode. The server connection is initiated by **2N® NetSpeaker**.

  - Default setting: 1
- searchmode
  - **2N® NetSpeaker** is searching for **2N® NetSpeaker Server** in network and use Server's domain.
  - Setting options:

0	Searchmode is disabled
1	Searchmode is enabled

  - Default setting: 1
- volume
  - Settings of volume for **2N® NetSpeaker** where value 0 is minimum and 4096 is maximum.
  - Default setting: 1024
- domain
  - Settings of domain which is used by **2N® NetSpeaker** for communication.
  - Default setting:
- descr
  - Descr is voluntary parameter describing **2N® NetSpeaker**. It is possible to use any string.

- Default setting: MAC address

- dhcpclient: This parameter enables/disables automatic obtaining network parameter settings from the DHCP server in the LAN.
  - Setting options:

0	Automatic network parameter obtaining is disabled. Use manual settings: ipaddr, netmask and defaultgw.
1	Automatic network parameter obtaining is enabled.

  - Default setting: 0

- ipaddr
  - **2N® NetSpeaker** static IP address. Use this setting if dhcpclient is set to 0.
  - Default setting: 192.168.1.100

- netmask
  - Network mask for static IP address setting. Use this setting if dhcpclient is set to 0.
  - Default setting: 255.255.255.0

- defaultgw
  - Default gateway for packets routed outside the LAN. Use this setting if dhcpclient is set to 0.
  - Default setting: 192.168.1.1

- pwd
  - **2N® NetSpeaker's** own password for authorising connection initiated by the **2N® NetSpeaker Server**. The same password must be stored in the **2N® NetSpeaker Server** global settings and must be identical for all **2N® NetSpeaker** units in the system. This password is used for Telnet server connection authorisation too.
  - Default setting: admin

- srvipaddr
  - **2N® NetSpeaker Server** IP address. Use the setting in the active mode, i.e. if activemode=1.
  - Default setting: 192.168.1.1

- srvport
  - **2N® NetSpeaker Server** communication port. Use the setting in the active mode, i.e. if activemode=1.
  - Default setting: 6999

- srvpwd
  - **2N® NetSpeaker Server** connection authorisation password. Used both in the active and passive modes of **2N® NetSpeaker**. The password must be identical with the **2N® NetSpeaker Server** password.
  - Default setting: admin

Firmware upgrade

2N® NetSpeaker firmware upgrade runs automatically whenever **2N® NetSpeaker** g ets connected to the **2N® NetSpeaker Server**. This guarantees that all connected devices have identical and latest firmware versions. Refer to www.2n.cz for the latest firmware version.

2. Manual for Control Panel software – Server Administration

2N® IP Audio Control Panel is user friendly software used for administration of all features of **2N® IP Audio System**.

In this section:

- 2.1 Sessions
- 2.2 Destinations and Zones
- 2.3 Audio Sources
- 2.4 Scheduler
- 2.5 Sync Manager
- 2.6 Users
- 2.7 Administrator

2.1 Sessions

What you should know

- Sources can be type–filtered in the **Input sources** header.
- Upon power up, the server automatically launches and starts playing all sessions that were active before power off.
- Higher priority of the active Session **always guarantees** that this Session will occupy all Destinations assigned to it.
- The last–created Freeride session has the highest priority = is playing.

Sessions

The session determines the **Source** – **Destination** connection, i.e. defines which source will be played to which destination. The left session part defines and helps control the source, the right session part determines the destination and **Session** optio ns.

Session Creation and Preparation for Playing

Click on Session –> Create empty session to create a session. You can perform this and other actions by retrieving the floating menu by the right mouse–click.

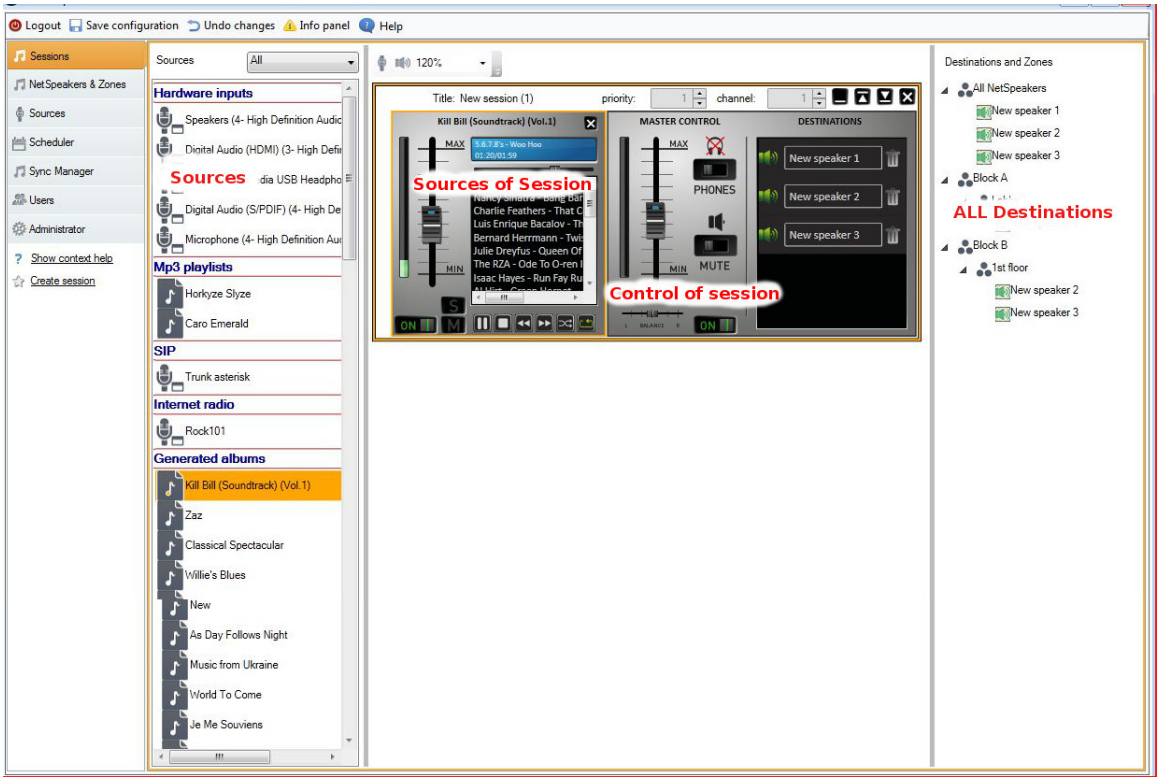

Figure: Session Window Layout

Use **Drag&drop** to add a source included in the source list to the session and a

destination to the destination list – **Destination targets**. Whether you add destinations by speakers or zones, the resultant functionality will be the same.

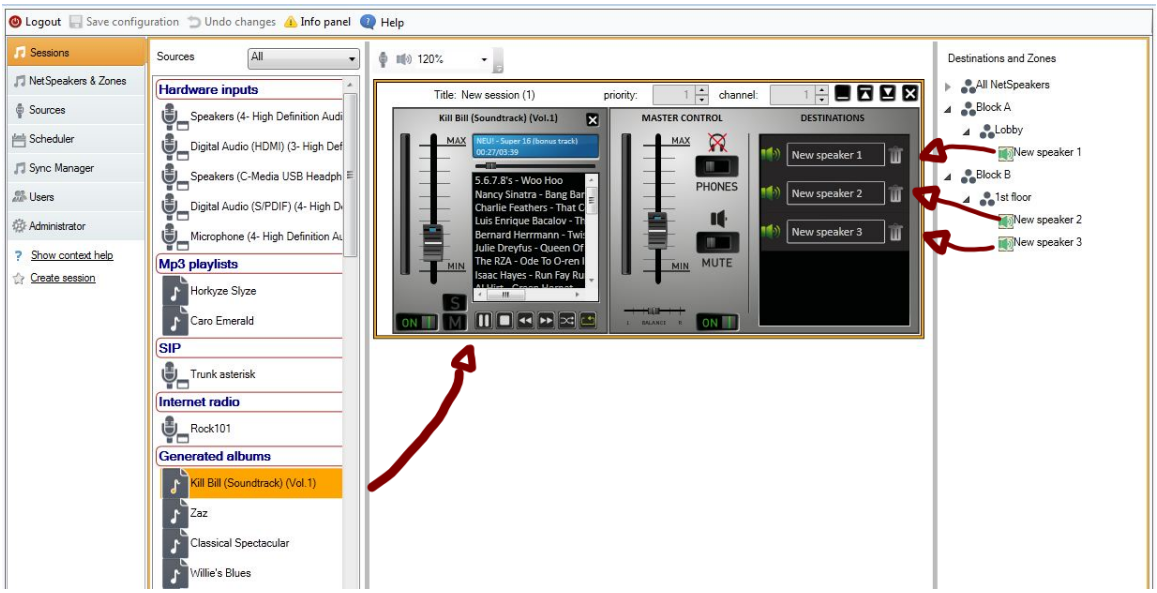

Figure: Adding of Sources and Destinations to Session

The created session is ready for broadcasting to destination(s). If no more parameters are needed, simply press **PLAY** and the added 2.1 Sessions or another source will start playing. Fig.5 shows two types of sources. The common bar contains volume control settings.

Session Control and Launch

Click on **ON** in the Session control section to launch a session; refer to Fig. 3. Fig.3 also shows additional session controls.

- **Balance** – set balance for the right/left channel.
- **Listening in** – enable this parameter to listen to remote destinations locally.
- **Volume** – set the main session volume.
- **Sound activation/deactivation** – enable/disable sound for the active session.

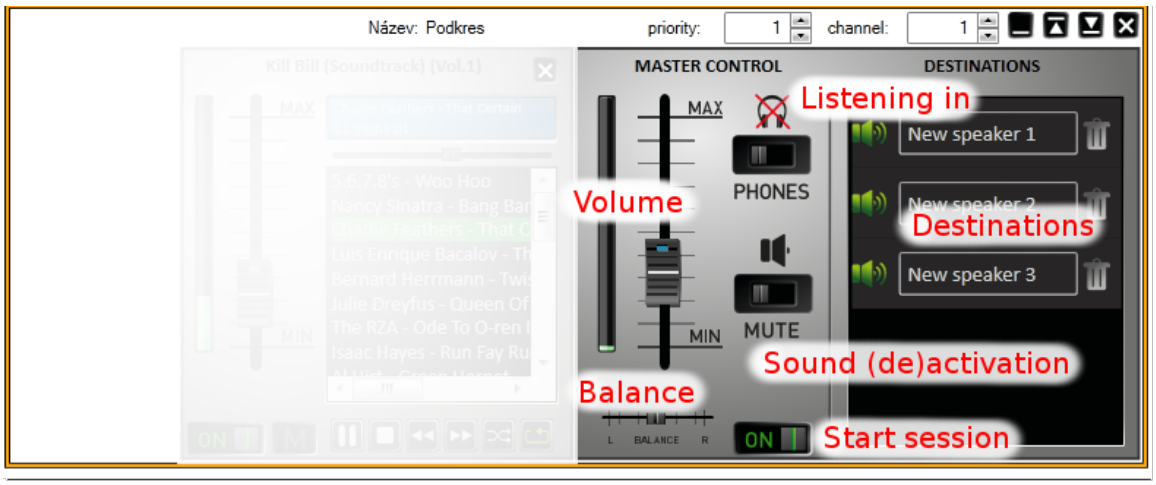

Figure: Session Control

Additional Session Setting Options

Besides the basic settings mentioned in 1.1., there are additional session settings such as Priority, Channel or Fade situated in the right–hand upper corner.

- **Priority** – set the session priority. The **highest** priority session is always preferred to lower priority sessions. A higher priority of the active Session **always guarantees** that the Session will occupy the destinations assigned to it (the source will play in the destination). The priority range is <1;10>, where priority 10 is automatically assigned to Freeride role broadcasting.
- **Channel** – set the channel for each session. **2N® NetSpeaker** supports 4 channels for 4 different sources.
- **Fade** – set the session fade. Parameter can be used for gradual change in sound volume. The fade range is <500;2000> ms.

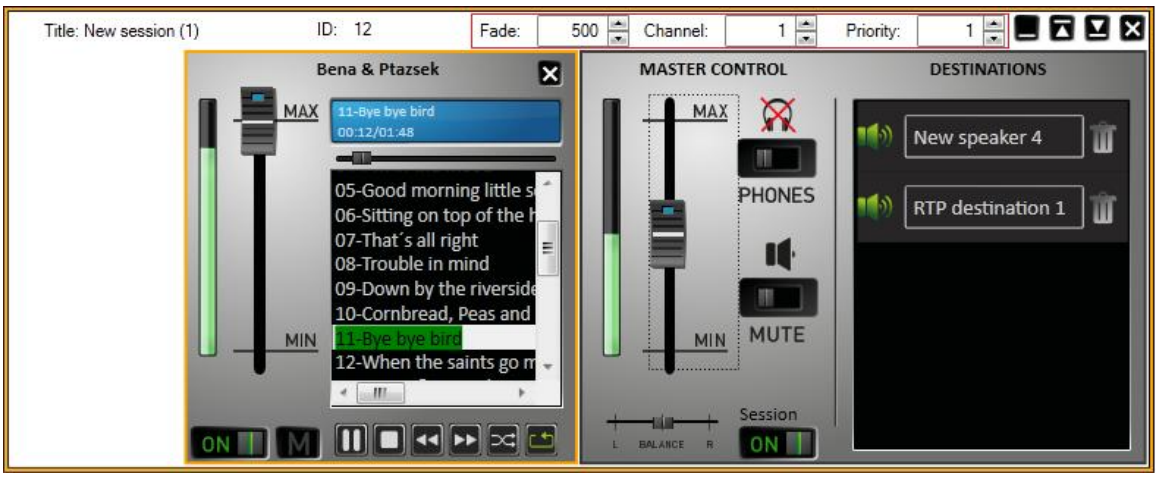

Figure: Priority, Channel and Fade Settings

Audio Sources

You can add multiple sources to each session. Use the source tag to create a source (refer to Audio Sources for details). Add the sources in the **Bar** format. There are two types of bars – one is designed for the Playlist and the other for the rest of the sources. Fig.5 shows the two types.

Figure: Volume Bars

Common bar – helps you control volume, balance and sound activation/deactivation. The Internet radio contains a status line displaying information on playing.

Playlist – here you can, besides basic functions, control mp3 files with play/stop, pause, next, previous, shuffle and repeat. Moreover, you can minimise the playlist bar.

2.2 Destinations and Zones

What you should know

- Zones are logical units used for **2N® NetSpeaker** grouping.
- A zone can be added to a Session if you want to play the same music or announce news.
- **2N® NetSpeaker** with the active mode setting connects to the server automatically.
- **2N® NetSpeaker** scanner helps you administer unconnected NetSpeakers via the 2.7 Administrator tag.
- Once **2N® NetSpeaker** gets connected to the server, its setting by Telnet is prohibited until Telnet is enabled in the configuration.
- Licence is necessary for proper function of RTP Destinations.

Destinations & Zones

This tag helps you administer **2N® NetSpeakers** by assigning them to zones and changing their parameters. The tag includes a Zones tree, a NetSpeakers panel (speakers, zones including contents) and a Zone/NetSpeaker Properties panel.

Zones

Zones helps **divide objects logically** and assign **2N® NetSpeakers** to zones for easier handling (by assigning zones to 2.1 Sessions) in extensive installations. Moreover, the zones can be regarded as **2N® NetSpeaker** groups.

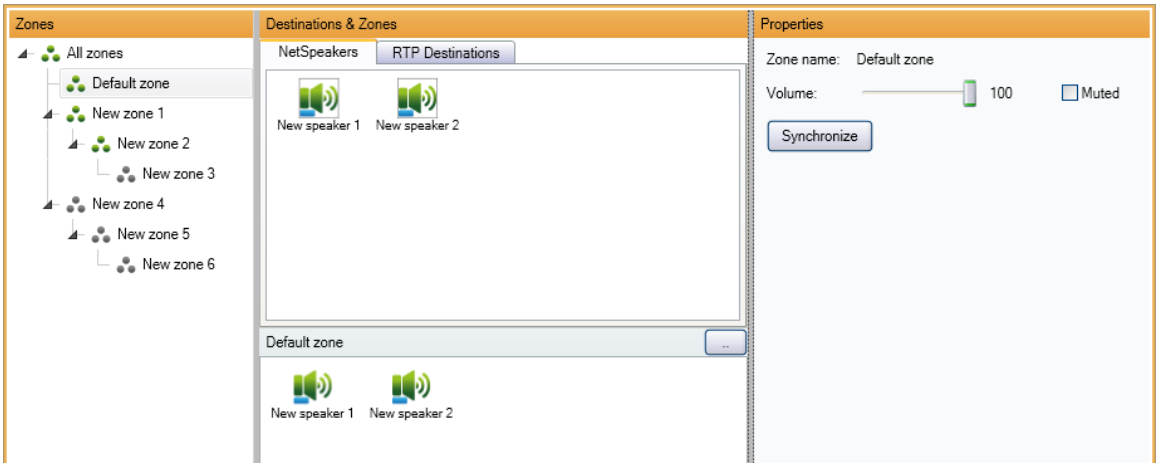

Figure: View of Destinations & Zones Tag

To create a **Zone**, select menu –> Create subgroup* or retrieve the floating menu with the right mouse click and select Create subgroup again. Retrieve the floating menu on the **All zones** panel –> Rename to rename a zone.

Having clicked on a **Zone**, you can set the Properties for the Zone: set/switch off volume for all speakers in the zone. Click on **Synchronize** button to launch synchronisation of all the speakers assigned to the zone.

Loudspeakers (2N® NetSpeakers)

The Loudspeakers panel displays the **2N® NetSpeakers** to be connected as instructed in NetSpeaker Connection. Retrieve the floating menu to remove or rename a speaker.

Use the drag&drop function to move the selected speaker from the list of loudspeakers to the required zone. Again, use the drag&drop function or the floating menu –> Remove to **remove** a speaker from the zone to the loudspeaker list.

The **2N® NetSpeaker** properties are divided as follows:

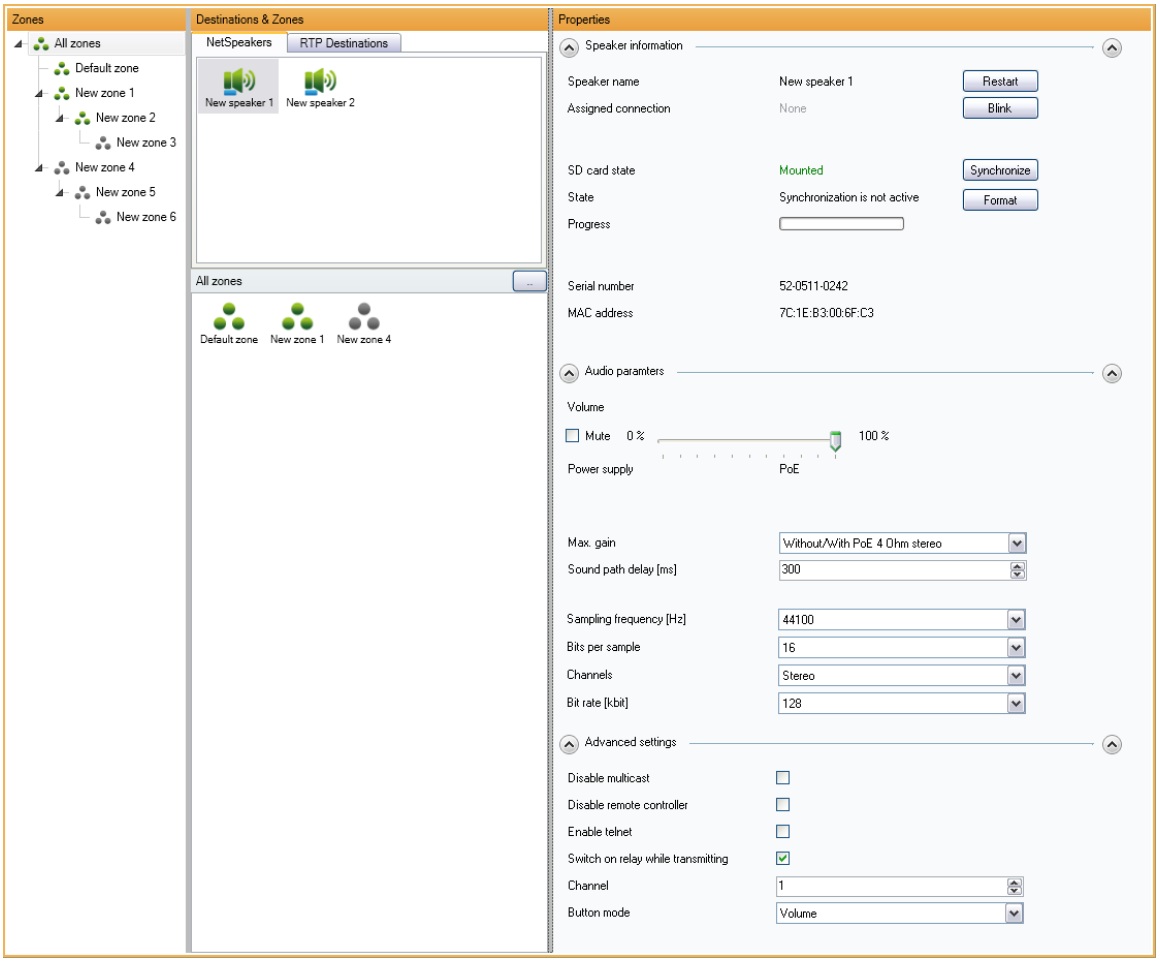

Figure: NetSpeaker Setting Options

Loudspeaker information

Here find the loudspeaker name, connection if existing and synchronisation status. Click on **Synchronize** to launch synchronisation as set in the Sync Manager tag for the current **2N® NetSpeaker** only.

SD card state – informs whether or not the SD card has been connected and is ok.

State – announces one of the following synchronisation states:

- Synchronisation is not active
- Waiting for synchronisation
- Synchronisation in progress
- Synchronisation error
- Synchronisation completed
- Ready for synchronisation
- Calculation in progress
- Synchronisation postponed

Sound settings

This section is devoted to loudspeaker sound parameters.

- **Volume and equaliser** – use this parameter to set the loudspeaker volume. This setting will not be active until saved. Use remote control or press the **2N® NetSpeaker** buttons or set volume for the whole zone to change the setting.
- **Detected parameters** – **2N® NetSpeaker** detects these parameters to inform the server of the loudspeakers and power supplies connected.
- **Maximum gain** – select a power supply and loudspeaker type to determine the maximum gain.
- **Sound path delay** – set the expected delay – buffer size – for **2N® NetSpeaker** for Wi–Fi installations or potentially unreliable packet deliveries.
- **Sampling frequency** – set the audio signal sampling frequency.
- **Bits per sample** – define the count of bits per audio signal sample.
- **Channels** – define the count of audio signal channels – stereo/mono.
- **Bit stream** – define the count of bits to be transmitted in 1s of audio signal.

Advanced settings

- **Disable multicast** – disable multicast. Multicast is a Point–to–Multipoint transmission option, which saves the network capacities (if implemented in network elements) and server means.
- **Disable remote control** – disable remote **2N® NetSpeaker** setting.
- **Enable Telnet** – **Telnet** connection is disabled by default for security reasons upon **2N® NetSpeaker–server** connection. Select this option to enable Telnet even during **2N® NetSpeaker–server** connection. This option, however, is not recommended for security reasons.
- **Activate relay during receving** – select this option, for example, to switch on/off the external amplifier if available.
- **Channel** – set the **2N® NetSpeaker** channel.
- **Button mode** – select the HW button mode – channel switching or volume setting. Or, deactivate the buttons.

Generic RTP output

Enables interconnect (via sound) NetSpeaker server with all devices that support audio by the RTP protocol with codec G711, L16. The output is defined codec and IP address which will be broadcast sound. Thus defined, the output can then be used as a general-defined output audio from a session. **Licence** is necessary for proper function of RTP Destinations.

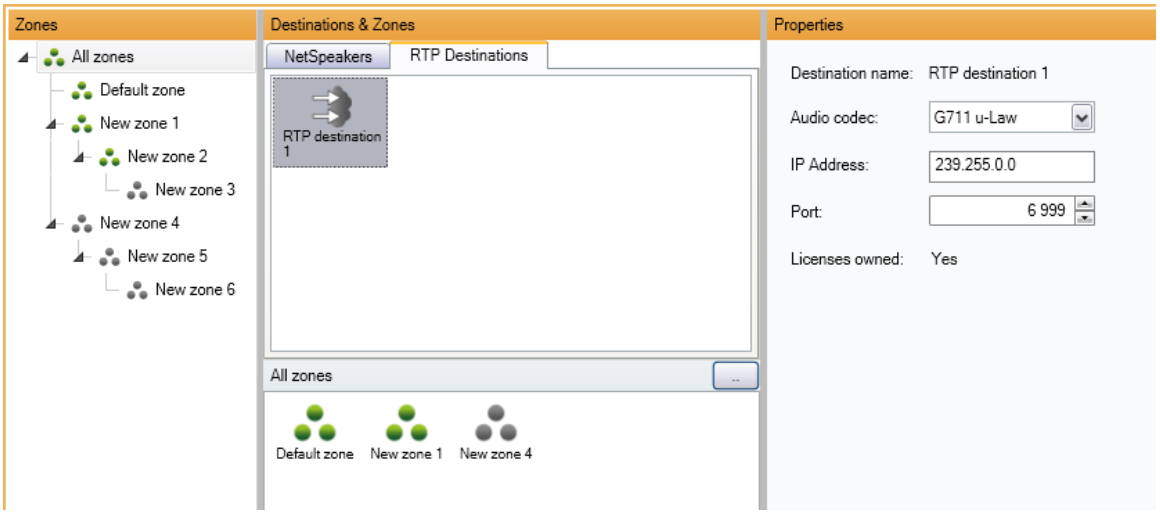

Figure: RTP Destinations Setting Options

Properties of RTP destinations

This section is devoted to RTP destinations.

- **Destination name –** parameter shows a name of the RTP destination
- **Audio codec –** allows you to select the required audio codec. You can choose from 4 options:
  - G711 u-Law
  - G711 A-Law
  - Liner PCM 16 bit Stereo
  - Liner PCM 16 bit Mono
- **IP Address** – sets multicast IP address.
- **Port** – sets port.
- **Licence owned –** parameter shows if a valid licence was successfully added.

2.3 Audio Sources

What you should know

- It **is necessary to assign** the created working source (SIP, Playlist, Microphone..) to a session in the 2.1 Sessions menu to define where the contents should be played.
- **2N® NetSpeaker** supports several types of input sources for specific applications.
- The HW sources are based on the **server PC** sound card. External sound cards can be used too.

Audio Sources

Hardware Inputs

HW inputs are inputs of your server – PC on which the **2N® NetSpeaker** Server is running; refer to the system architecture in 1.1 Introduction. A microphone, internal/external sound card and/or mixer are used for playing locally stored music using a standard audio player.

Playlist

Playlist defined by user

This is a classic principle of playlist creation in common music players. To create a new playlist, click to "+" button to chose .mp3 .wma ... to make a new playlist. You can select more files than one (with schift button).

Audio Sources
All
Hardware inputs
AMD HDMI Output (AMD High Definition Audio Device)
Communications Headphones (IDT High Definition Audio C...
Integrated Microphone Array (IDT High Definition Audio CODEC)
Line In (IDT High Definition Audio CODEC)
Microphone (IDT High Definition Audio CODEC)
Speakers / HP (IDT High Definition Audio CODEC)
Stereo Mix (IDT High Definition Audio CODEC)
Mp3 playlists
New playlist (1)
VoIP input (SIP)
New VoIP input (SIP) (1)
Internet radio
New internet radio (1)
Mp3 playlist settings
Name New playlist (1)
2 ? C:\1 - D\mp3\ACDC- Back In Black\001.MP3
3 ? C:\1 - D\mp3\ACDC- Back In Black\002.MP3
4 ? C:\1 - D\mp3\ACDC- Back In Black\003.MP3
5 ? C:\1 - D\mp3\ACDC- Back In Black\004.MP3
6 ? C:\1 - D\mp3\ACDC- Back In Black\005.MP3
7 ? C:\1 - D\mp3\ACDC- Back In Black\006.MP3
8 ? C:\1 - D\mp3\ACDC- Back In Black\007.MP3
9 ? C:\1 - D\mp3\ACDC- Back In Black\008.MP3
10 ? C:\1 - D\mp3\ACDC- Back In Black\009.MP3
11 ? C:\1 - D\mp3\ACDC- Back In Black\010.MP3
Up
Do

Figure: Adding of Audio Files to Playlist

To add files from a PC other than that on which the server is running to the new playlist, use the "Import file" option in Administration > File manager menu.

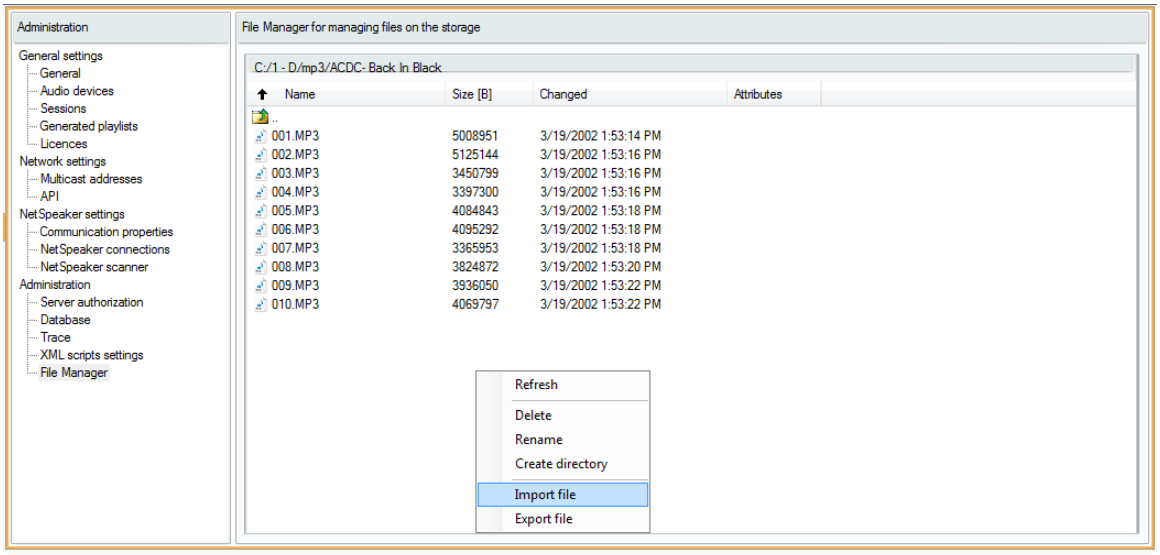

Figure: Import of Audio Files to Server

Generated playlists

Generated playlists are playlists that are created by the ControlPanel automatically from the selected directory according to selected rules. Generated playlists are created via the 2.7 Administrator tag. Refer to the **Audio Sources** tag for the playlist items.

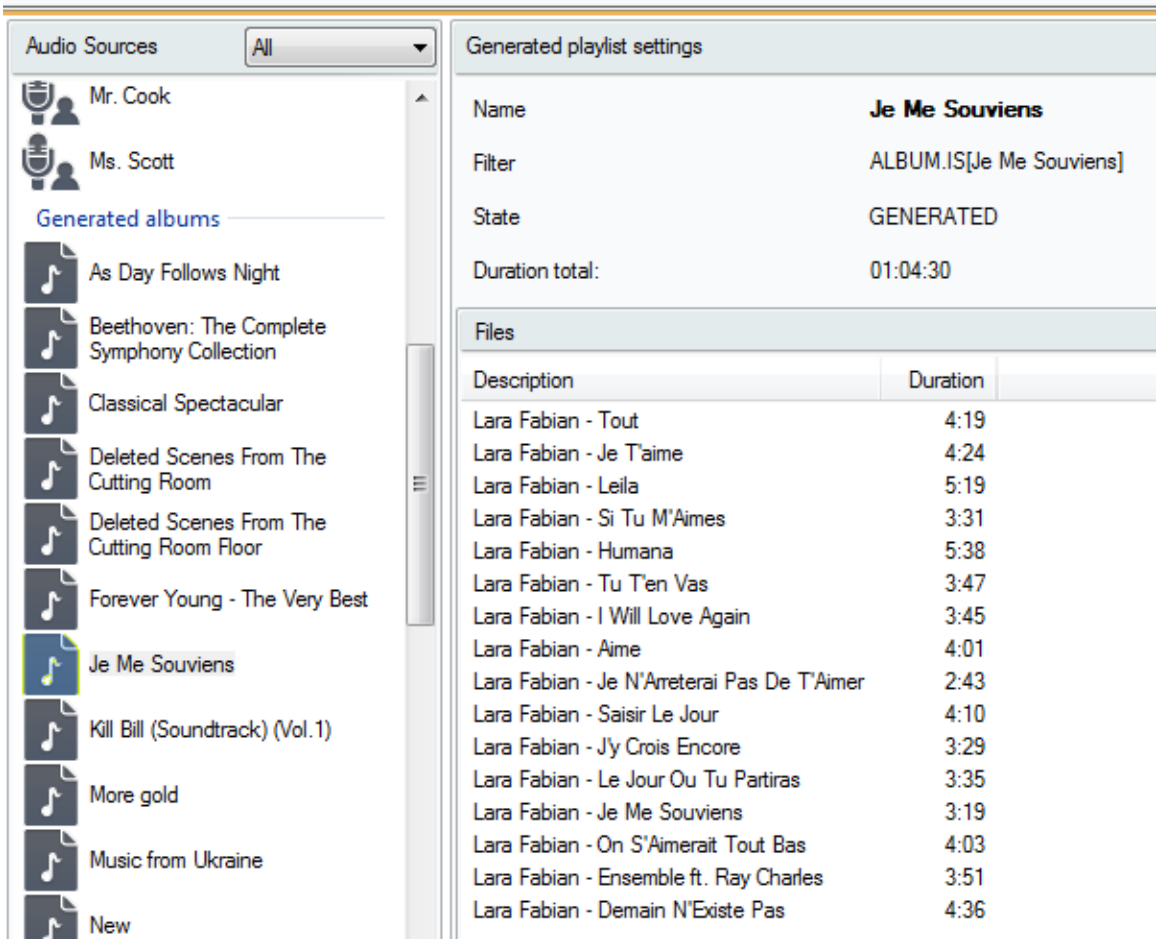
Audio Sources
All
Mr. Cook
Ms. Scott
Generated albums
As Day Follows Night
Beethoven: The Complete Symphony Collection
Classical Spectacular
Deleted Scenes From The Cutting Room
Deleted Scenes From The Cutting Room Floor
Forever Young - The Very Best
Je Me Souviens
Kill Bill (Soundtrack) (Vol.1)
More gold
Music from Ukraine
New
Generated playlist settings
Name
Je Me Souviens
Filter
ALBUM.IS[Je Me Souviens]
State
GENERATED
Duration total:
01:04:30
Files
Description
Duration
Lara Fabian - Tout 4:19
Lara Fabian - Je T'aime 4:24
Lara Fabian - Leila 5:19
Lara Fabian - Si Tu M'Aimes 3:31
Lara Fabian - Humana 5:38
Lara Fabian - Tu T'en Vas 3:47
Lara Fabian - I Will Love Again 3:45
Lara Fabian - Aime 4:01
Lara Fabian - Je N'Arreterai Pas De T'Aimer 2:43
Lara Fabian - Saisir Le Jour 4:10
Lara Fabian - J'y Crois Encore 3:29
Lara Fabian - Le Jour Ou Tu Partiras 3:35
Lara Fabian - Je Me Souviens 3:19
Lara Fabian - On S'Aimerait Tout Bas 4:03
Lara Fabian - Ensemble ft. Ray Charles 3:51
Lara Fabian - Demain N'Existe Pas 4:36

Figure: Generated Playlists

This way, you can fill the server with mp3 files even remotely via the WAN.

Sets of user inputs

Set of user inputs is a group of rules rather than an actual input. The rules define users with the right to use the input and also assign inputs to rooms if necessary.

Example: Suppose a language school has English and German classrooms. There are 4 teachers in the school: Mr. Cook, Ms. Scott, Hr. Himmel and Fr. Moselle. Use the set of user inputs to create **English classroom input** and **German classroom input**.

- Enable the "English classroom" virtual input for Mr. Cook and Ms. Scott.
- Enable the "German classroom" virtual input for Hr. Himmel and Fr. Moselle.

Doing this, you have created the possibility to play audio in the classrooms and let the teachers simply choose classrooms using the Console tool.

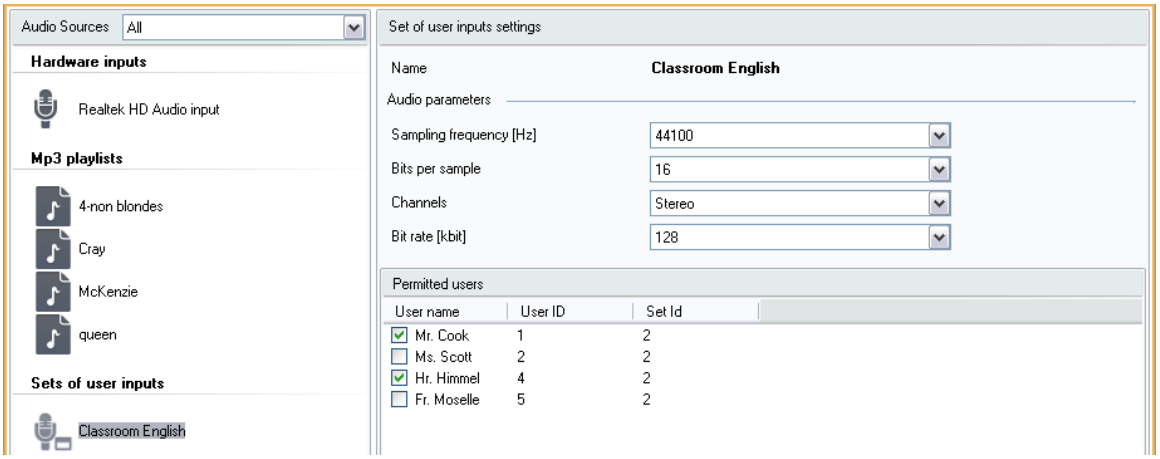

Figure: Adding of English Teachers to Set of user inputs

SIP Port

The SIP source helps you connect **2N® NetSpeaker** to a VoIP (Voice over IP) PBX as a VoIP station via the SIP. You have to know the PBX IP address, username and password (if requested) and the port to establish connection to the PBX. Refer to the subsections below for the parameters and setting options.

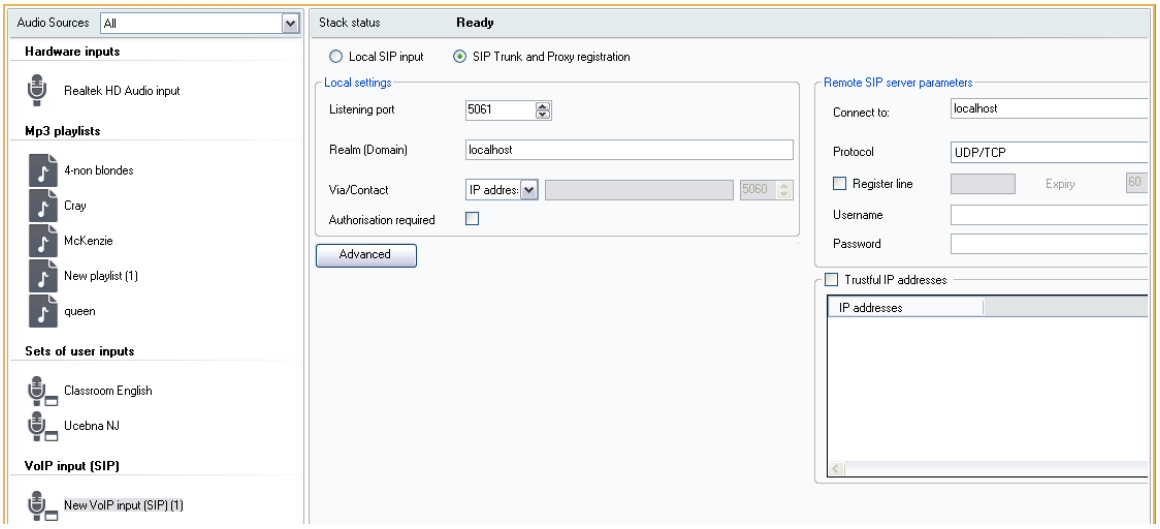

Figure: SIP Source Setting

Source status

Refer to the upper menu section for information on the stack (communication protocol) type and current status.

- **SOCK_TCP_ERROR** – TCP socket failed to open.
- **SOCK_UDP_ERROR** – UDP socket failed to open.
- **CREDS_IN_ERROR** – authorisation server unavailable.

- **CREDS_OUT_ERROR** – authorisation client unavailable.
- **REALM_CONFLICT** – realm collides with another port's realm/alias.
- **STUNNING** – public address obtaining from STUN server in progress.
- **STUN_TIMEOUT** – STUN server inaccessible.
- **EXPIRED** – public address validity expired.
- **SIP_REGISTERING** – gateway registration in progress.
- **REG_TIMEOUT** – REGISTRAR server inaccessible.
- **REG_NOT_AUTH** – registration unauthorised.
- **REG_REJECTED** – registration rejected with error.

Basic parameters

- **Port** – is a local port of NetSpeaker Server on which the given gateway is communicating with the counterparty.
- **Realm(Domain)** – define the domain over which this gateway is communicating. The domain and port specified here are relevant for subsequent call routing to the NetSpeaker Server. The Request–URI field including Realm(Domain) + port are checked for incoming INVITE messages. If the values match the SIP GW setting, the packets are routed to the NetSpeaker Server. The INVITE messages are served too whose Request–URI values are included in the **Aliases** field.
- **Via/Contact header** – define the contents of the Via and Contact headers. The following options are available:
- **Connect to** – fill in the unique PBX IP address.
- **FQDM** – the header includes the PBX Host Name, which can be filled on the PBX IP interface.
- **NAT** – fill in the fixed public IP address and NAT port to which signalling messages for the PBX should be sent by the counterparty. Packets are routed to the PBX based on the set port routing IP address on the router.
- **STUN** – fill in the STUN server address and port to identify the current address behind the NAT router.
- **Requires authorisation** – activate authorisation request for incoming calls from the counterparty. User login data are used for call authorisation. All logins are always searched through.
- **Transmit busy tone** – enable transmission of the busy tone from the PBX or network when the counterparty hangs up.

Remote SIP server parameters

- **Address** – set the IP address or DNS name of the counterparty (operator or another PBX) to which you want to connect the PBX via a trunk (where call and registration requests shall be routed). To use a port other than 5060, specify the port behind the colon (192.168.122.43:5071).
- **Protocol** – specify whether UDP and/or TCP shall be used for transmission. If you choose NAPTR (Name Authority PoinTeR), a query to the DNS is made first and, depending on the reply, the proper transmission protocol is set. The **Use DNS SRV** parameter can be used with this setting and suitable DNS only.
- **Register line** – enable registration with the counterparty and specify the gateway registration number (Caller ID). No call setup requests can be resent to an unregistered gateway.
- **Validity** – set the registration validity term. The resultant value can be defined by the counterparty (if shorter).

Authorisation data

- **Name** – user name for registration with the counterparty.
- **Password** – password for registration with the counterparty.

IP filter

The parameter helps secure the NetSpeaker Server against undesired call attempts via the given SIP Gateway. Tick off this option to make the PBX process only the requests coming from trustworthy IP addresses included in the list. Add, remove or modify an IP address to/in the list using the buttons to the right of the IP address list or the context menu retrieved in the IP address list with the right–hand mouse button.

Other parameters – SIP

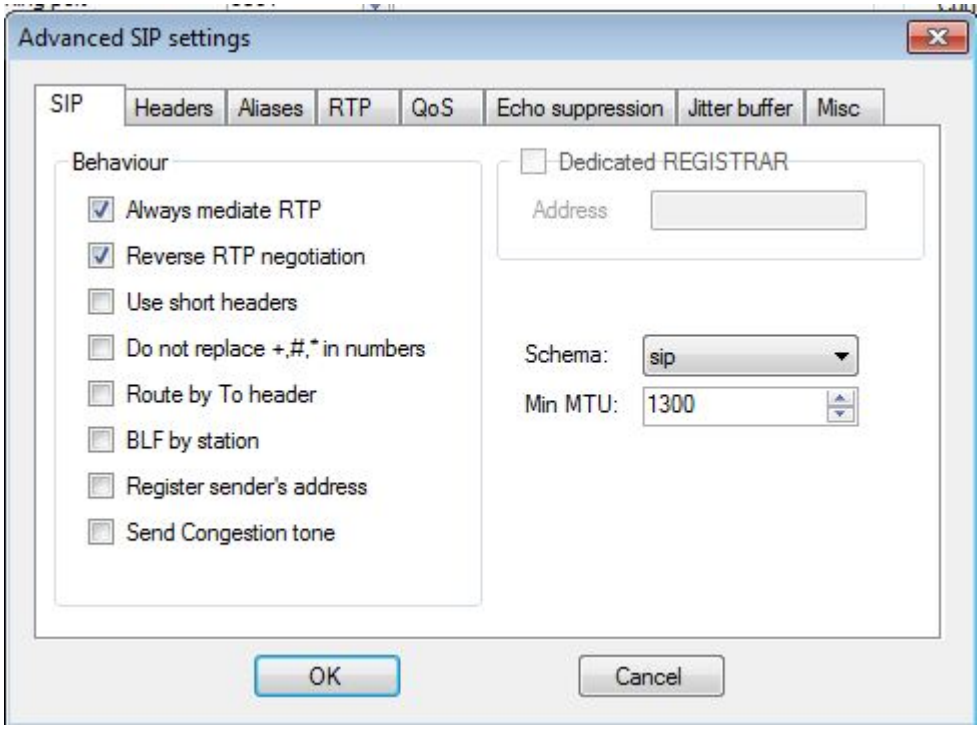

Figure: Other Parameters

- **Always mediate RTP** – enable this parameter to route the RTP stream via the PBX VoIP card in all cases. Otherwise, the RTP stream might be routed outside the PBX (for VoIP – VoIP connections) and the PBX processes only signalling for such a call.
- **Reverse RTP negotiation** – tick off this option to set the codec negotiating method. If you do not tick off this option, the PBX offers codecs in the INVITE message.
- **Use short headers** – tick off this option to use abbreviated header items for outgoing SIP packets. Example: From = f, To = t, Via = v. This optimisation helps minimise data to be transmitted.

- **Do not replace +,#,* in numbers** – if you do not tick off this option, the above mentioned characters will be replaced with adequate strings %xx in numbers. Tick off the option to send the characters.
- **Route by To header** – if you tick off the option, incoming call routing on the port will obey the **To** header setting. Otherwise (and by default!), **calls are routed by the Request URI header**.
- **Dedicated Registrar** – is used for the gateway only and helps route registration to another server.
- **Address** – IP address of the selected Registrar server.
- **Port** – port of the selected Registrar server.
- **Scheme** – set the **sip** or **tel** scheme in the "To" and "From" headers of the SIP. **tel** is used for networks based on the numbering plan according to recommendation E.164.
- **Min. MTU** – set the minimum packet length for obligatory use of TCP in the UDP&TCP mode. The recommended maximum value is 1448 bytes.

Headers

- **Complete domain** – specify the domain to be used within the **From** and **To** headers.
- **Send information** – **P–Asserted–Identity** – activate the P–Asserted–Identity header for the INVITE message. This header is used for CLIR transmission to the counterparty, giving it information on the calling number even in the case of active CLIR (Calling Line Identification Restriction). By default, the header is enabled on the SIP Gateway and disabled on the SIP Proxy.

Aliases

Use this option to specify additional Realms(Domains) to be accepted on this port. Such incoming calls (their INVITEs) will be routed to this port whose Request–URIs match the given SIP GW or SIP Proxy settings and Domains or Aliases.

RTP

- **DSP**– here you can optimise data to be transmitted. Packets are not sent while the user is not speaking. VAD stands for Voice Activity Detection.
  - **Disabled VAD**
  - **VAD acc. to G.729 Annex B**
  - **VAD light**
- **Generate comfort noise** – enable comfort noise generating. As users of classic analogue lines are used to some background noise, this option simulates similar call impression to them.
- **Mask lost packets** – enable optimised computing of probable contents of lost packets.

QoS

The **TOS/DiffServ** section helps you set outgoing packet parameters which define the packet priority for processing by network elements.

- **SIP** – hexadecimal priority value for SIP packets.
- **RTP** – hexadecimal priority value for RTP packets.
- **Default values** – restore the default values for the two parameters.

Echo suppression

Use this tag to activate various echo cancelling methods.

- **Suppression disabled**
- **Profile G.168 8 ms**
- **Profile G.168 16 ms**
- **Profile G.168 32 ms**
- **Profile G.168 64 ms**
- **Profile G.168 128 ms**

- **Delay [ms]**
- **Adaptive suppression**
- **Non–linear processing**
- **Reuse of coefficients**
- **Automatic control**

Jitter buffer

Set the parameters in this tag to optimise packet delay fluctuation during network passage.

- **Delay [ms]**
- **Depth [ms]**

Automatic adaptation

- **Short adaptation parameters**
- **Low [ms]**
- **High [ms]**
- **Threshold**

Miscellaneous

- **Receive marks in call**
  - **Mode** – set the supported DTMF receiving mode for calls.
- **Send marks by INFO method**
  - **DTMF** – select one of the two DTMF sending modes using the SIP INFO method. The modes have different formats of the DTMF transmitting message.
- **KeepAlive**
  - **Period** – define the KeepAlive packet sending interval. The default value is 10s.
- **STUN server**

The STUN server helps NAT clients (i.e. PCs behind the firewall) set up telephone calls with the VoIP provider hosted outside the LAN.

- **Address** – complete the STUN server address (IP or domain name) to be used if the STUN IP method is selected in the port RTP interface configuration. The default value is **stunserver.org**.
- **Port** – set the port to be used for STUN. The default value is **port 3478**.

Internet Radio

The Internet radio source allows you to insert URI of the selected radio and set radio delay (in ms) – characterises the radio buffer size. Radios in the mp3 format are supported only.

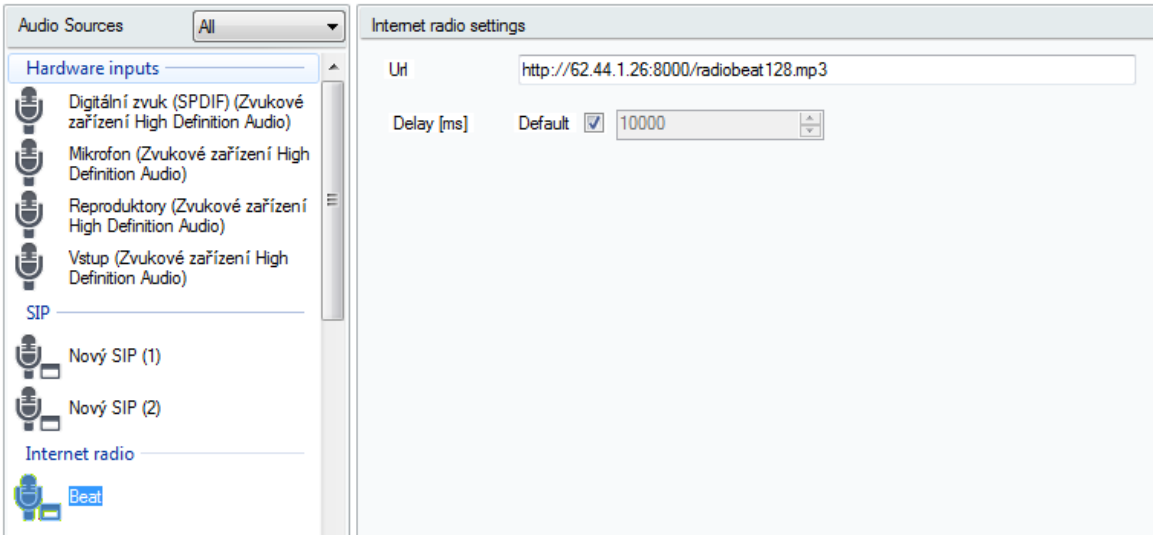

Figure: Internet Radio Parameters

User Input

User input is assigned to the user and defines the audio stream parameters from the user for playing from Console, for example. Figure shows the default input settings.

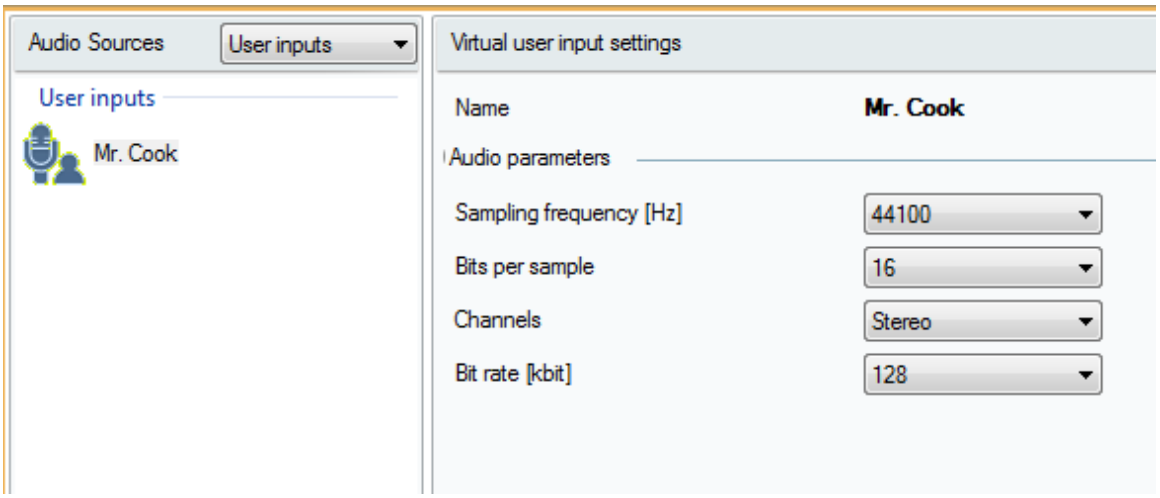

Figure: User Input Parameters

Generic RTP input

It is a common audio input. All devices that can transmit audio using RTP protocol and

codec G711, L16, can server as a sound source for the session. The sound source is defined by listening port, IP address if is unicast is not necessary to define (this is the IP address of the server). If NetSpeaker Server listen on the defined multicast address is required to enter this address (then considered the specified port + IP multicast). If it is necessary to provide a sound source, it is possible to define the source IP address.

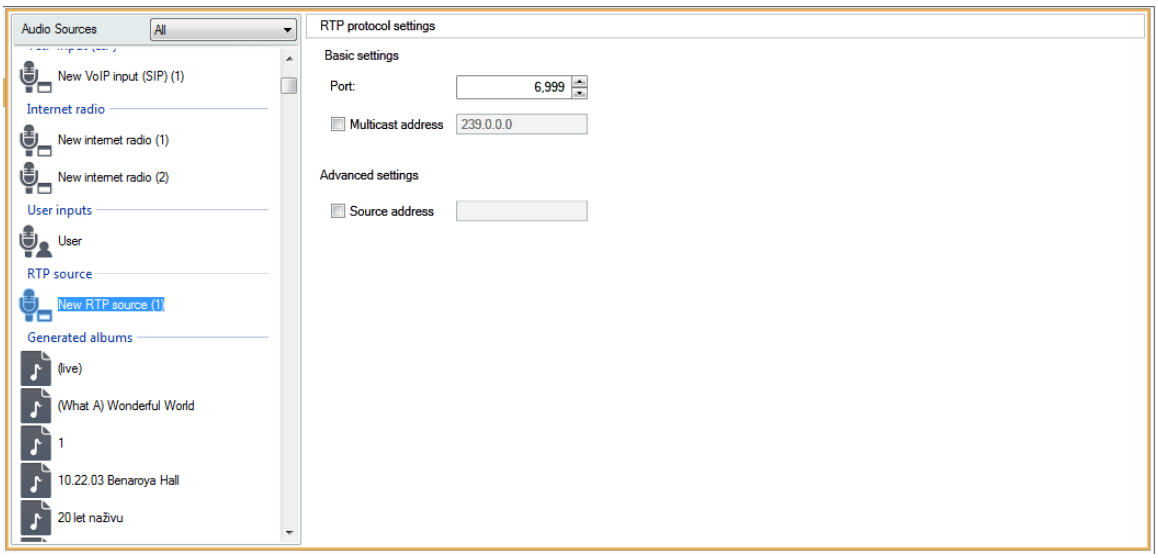

Figure: Generic RTP input

2.4 Scheduler

What you should know

- If the "Create actions for session activation and deactivation automatically" option is enabled, session activation/deactivation is set together with the first action for the session.
- If you power up the server while the event "is in progress", the actions will not be performed. The server must always be activated **before the beginning** of the event.
- Action: session activation automatically enables all playlists in the session.

Scheduler

Scheduler is used for creating actions based on playlists. You can schedule various actions for the playlists and assign them to time. A set of actions for playlists is called **Event** and you can control multiple playlists in multiple sessions within one event. Fig.1 shows an example of event with two sessions. One contains a playlist, the other is without a playlist.

Event Creation

As mentioned above, the event is a set of actions to be executed over playlists. Therefore, prepare a session including the required playlists before creating an event. Only then you can start creating an event as follows:

Procedure:

Create a new event – use one of the following methods: click on the Scheduler tag and then on the **Create event** menu item, or use the floating menu. Also, you can assign an event to a date before creation by clicking on the required day and then on **Create event**.

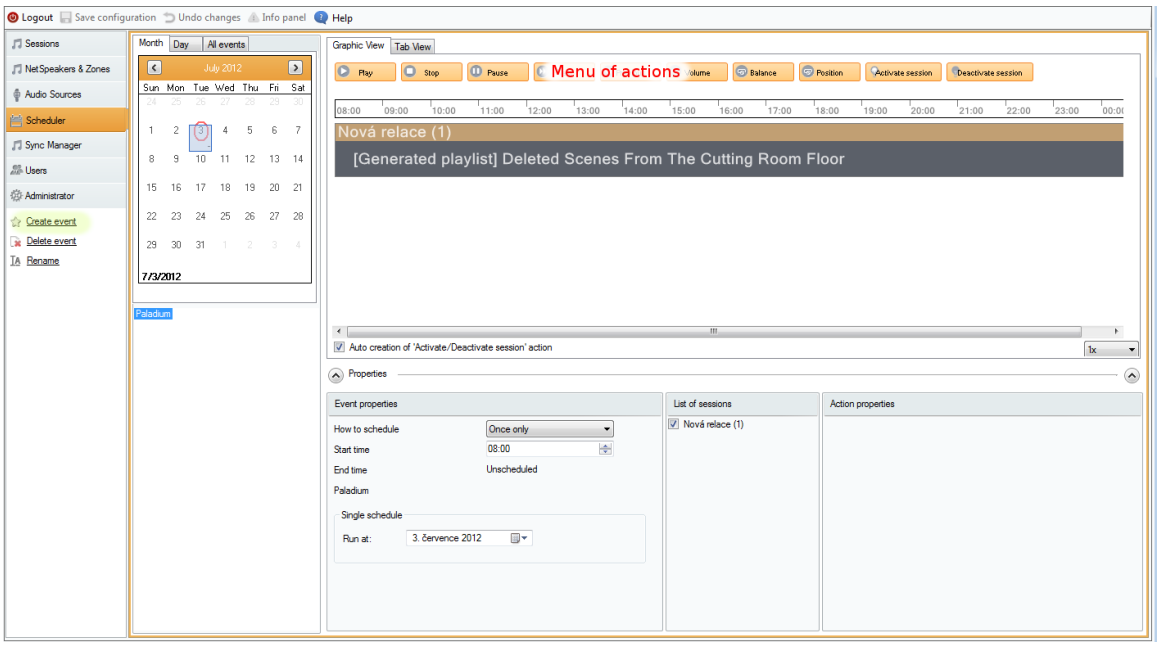

Figure: Scheduler Tab

Set event start – click on **Event** to display the event setting option to the left. Set the type, starting time and repeating intervals. The setting options depend on the action type:**Action setting options:**

- **Not scheduled** – this event will never be performed.
- **Daily** – the event will start at the set time every day (or as set in the **Every xth day**).
- **Weekly** – the event will start at the set time of the set days every week or **Every xth week**.
- **Monthly** – select a day in the month for the action start and also in which months the action shall occur **Once only**.

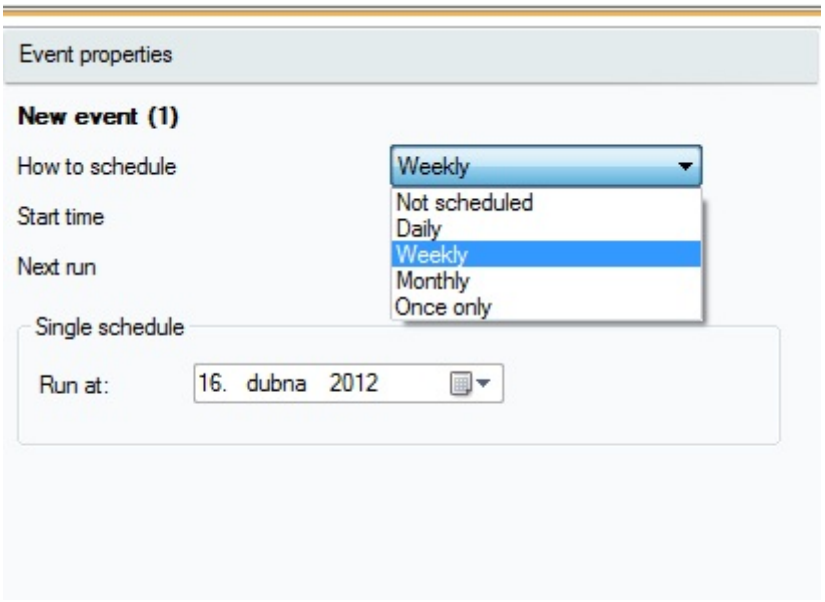

Figure: Event Settings

Action Setting

Having created an event according to Subs. 6.1. above, specify the contents of the event, i.e. what shall be played and when.

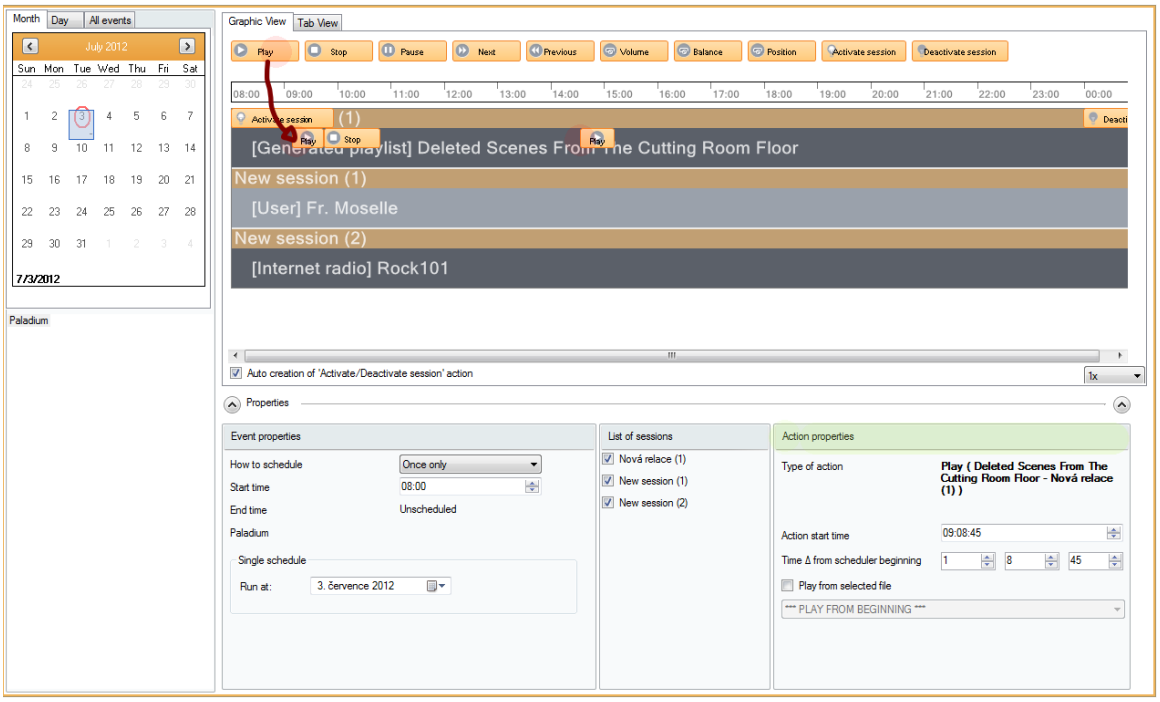

Figure: Action Setting and Display

Figure "Action Setting and Display" shows an example of a scheduled action. The **Activate/Deactivate session** actions are added automatically to the beginning and end of each event. If you disable this property, however, the scheduled actions will not start running in an inactive session. Also, **all playlists are switched on automatically** in a session that moves into the **active** state. Therefore, assign the **STOP action** to the beginning of the playlists that are not to be played.

Drag&drop the required action above the time axis of the event from the **offer of actions** in the time axis header (see the figure). **Always** move the action to the playlist to be controlled within one session. A session can contain multiple playlists and all the playlists can be administered.

You can modify the actions created as mentioned above according to the requirements of the given event. Click on an action and edit its parameters in the "Action setting" window. Refer to Figure "Action Setting and Display" for details on the **Play** action.

You can set different parameters than shown in Fig. 3 for different types of actions. You can set the start time only for most action types and other properties for some of them:

- **Play, Stop, Others, Previous and Activate/Deactivate session** – set the start time only.
- **Volume** – set the playlist volume – the volume level plus a smooth volume change.
- **Balance** – set the playlist balance – in addition to start time, set a smooth balance change via the **Change duration time** option.

In **List of session is possible** to choose sessions which will be used for event.

Event Display

There is an event list in the left part of the Scheduler tag. Display the list in any of the following views: **Month**, **Day** or **All events** by selecting a card.

- **Month view** – this view displays calendar for navigation. Click on a date to run the events associated with the selected date.
- **Day view** – having selected a date in the Month view, click on the Day card to display the required day details. Like with the Month card, you can only see the actions assigned to the selected date.
- **All events** – select this card to display all the events available.

2.5 Sync Manager

What you should know

- The SD card must be FAT32 formatted before being inserted in **2N® NetSpeaker**.
- **2N® NetSpeaker** has no RTC of its own. Connectivity to the server after HW restart is required for successful time synchronisation. Connection failures are irrelevant.
- We recommend to synchronise up to 100 MB of the contents.
- One action launched in time and one action launched by button press are always valid on one **2N® NetSpeaker**.
- Synchronisation rate depends on type of SD (SDHC) card.
- Content is synchronised automatically at the defined time or manually in the Destinations & Zones tag.
- Content is synchronised only if nothing is being played from the server.

Sync Manager

Sync Manager is used for administration of SD cards inserted in the **2N® NetSpeaker** system, synchronisation of these cards with the defined content and setting of action starts.

Sync Manager Tag Layout

Actions for synchronisation with the SD card (inserted in **2N® NetSpeaker**) are managed via the Sync Manager tag. The layout of this tag is rather complex. Refer to Fig. 1 for an overview of its functions.

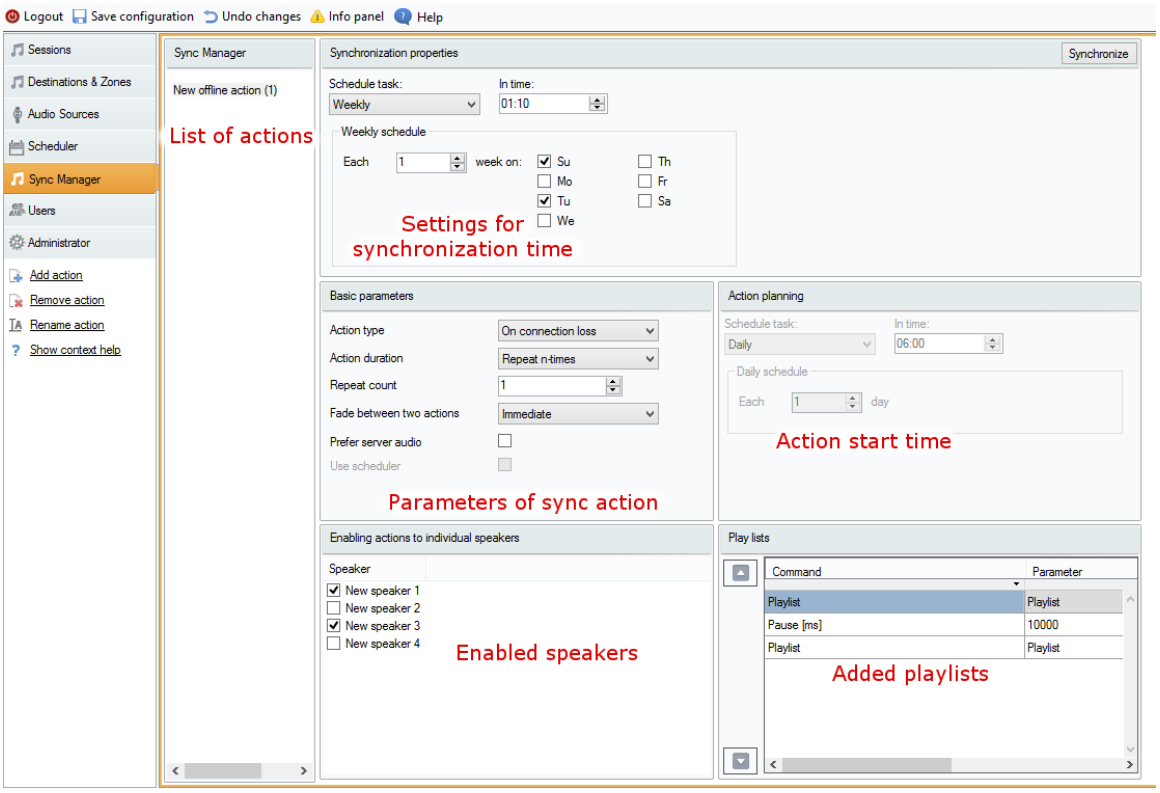

Figure: Sync Manager Tag Layout

The **left section** is dedicated to the list of **Actions for synchronisation**, the right–hand window part includes settings of action properties. These settings are divided logically as follows:

- **Synchronisation properties**
- **Basic parameters**
- **Action planning**
- **Enabling action to individual speakers**
- **Playlists**

The subsections below provide details on these logical parts.

Synchronisation properties

In this section, you can set and schedule action synchronisation. The following options are available:

- Not scheduled – perform synchronisation manually by pushing the Sync Now! button, or
- At defined time with the "Daily", "Weekly", "Monthly" and "Once only" options. Each of these options can be further set. This setting specifies the time when the selected synchronisation shall be launched. Fig. 2 shows an example of configuration for a one–month progress of updates.

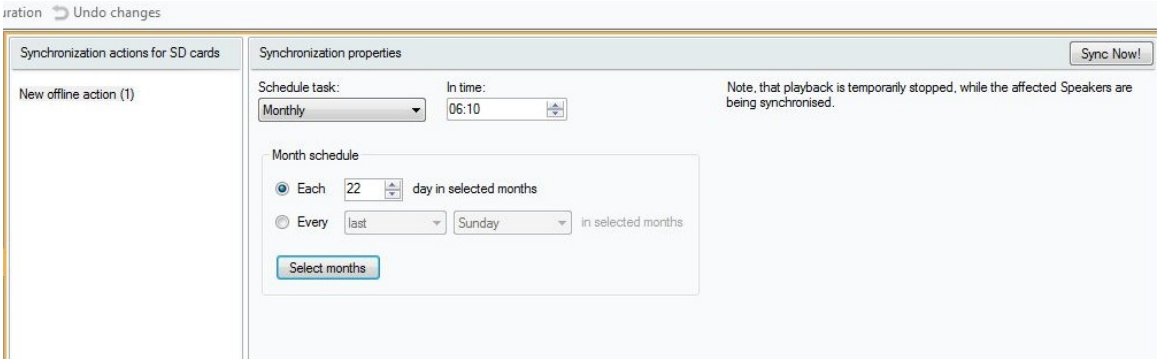

Figure: Synchronisation Properties

Basic parameters

These parameters define how the action shall behave: its trigger and behaviour upon start.

Action type – define the action trigger: either the logical input to **2N® NetSpeaker** (**Button press**) or a time value (**At time**). If you select time, select the time value and start day in **Action planning**; refer to Subs. 6.1.3., Action Planning. More possibilities for Actions are added by action types **Play from SD** card and **On connecton loss**.

- **On conneciton loss** starts actin in case of connection lost e.g. power supply for NetSpeaker Server fails
- **Play from SD** starts every time when audio stream stops or get interrupted e.g. Session is disabled, NetSpeaker Server is down etc.

Action duration – set the action end.

- **Specific time** – set the action duration using the following **Duration in (s)** field.
- **Repeat n–times** – define how many times the playlists selected in the Playlist shall be played. Use the **Repeat count** item.
- **Repeat all around** – make playing never stop. This option is particularly comfortable in connection with the HW button: press the button once to start the action and repress it to stop the action.

Fade between two actions

- **Prefer to server** – enable this parameter to interrupt the current playing from the server whenever the action starts.
- **Use as default** – define which action is the default one and must be checked off.

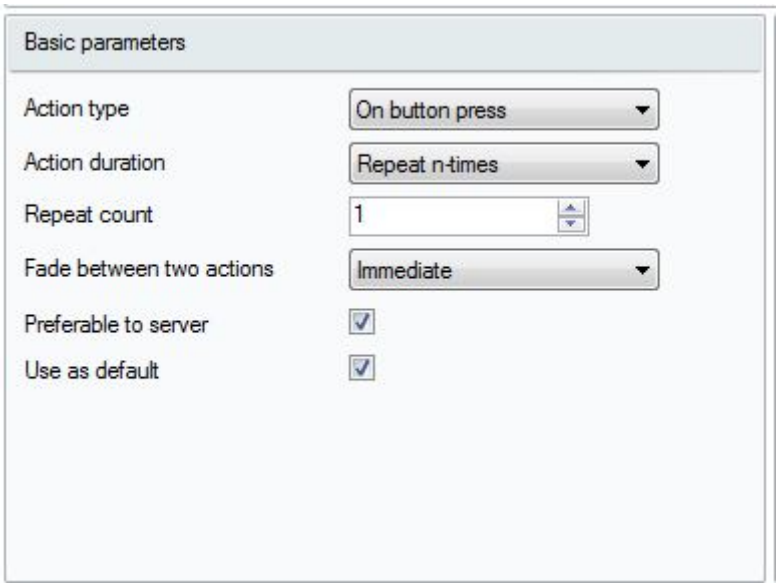

Figure: Basic Parameters

Action planning

If you select an action scheduled for start **at time**, it is necessary to schedule the action correctly. To do this, use the **Action planning** section. Fig. 3 shows a weekly schedule, but you can choose any of the following types of planning:

- **Not scheduled** – this action will never start.
- **Daily** – the action will start at the set time every day (or as set in the **Every xth day**).
- **Weekly** – the event will start at the set time of the set days every week or **Every xth week**.
- **Monthly** – select a day in the month for the action start and also in which months the action shall occur **Once only**.

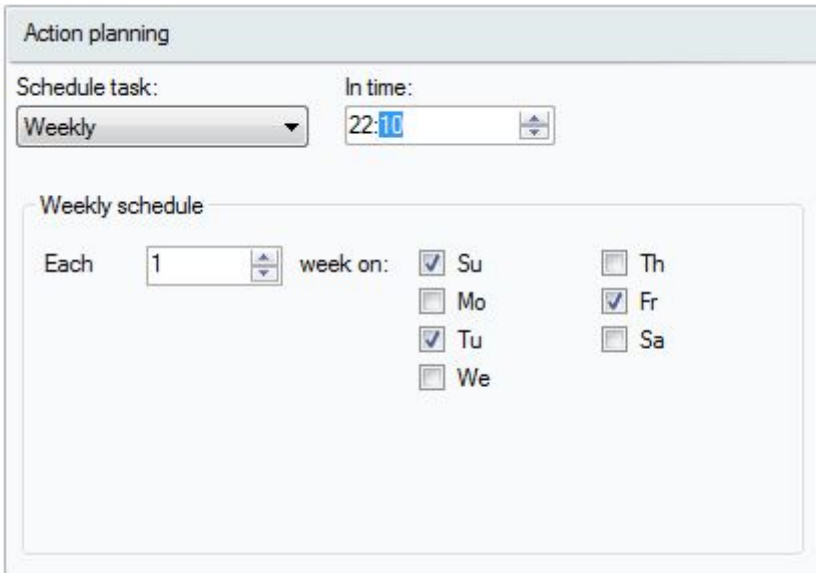

Figure: Weekly Schedule

Enabling action to individual speakers

Define the speakers for which the action shall be enabled. These speakers will be synchronised with the server and the files will be saved onto the SD card for each **2N® NetSpeaker.**

Playlist

Select the playlist(s) in the Playlist to be played when the given offline action starts. Also you can select command pause to add pause between playlists. Use the arrows to assign priorities to the playlist(s).

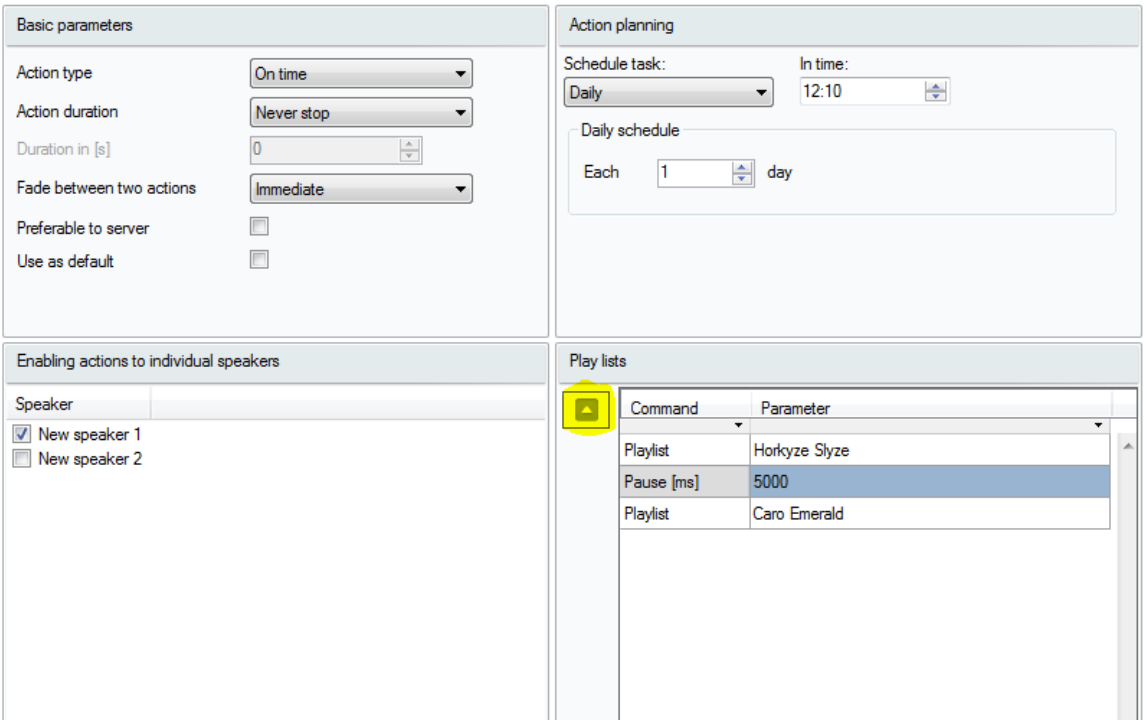

Figure: Playlist

Example of Synchronisation Action Configuration

Suppose company Xyz intends to play ad spots in its **2N® NetSpeaker** system at 6 a.m. every day. As the spots vary every week, it will be necessary to synchronise the **2N® NetSpeaker** system early in the morning on Mondays.

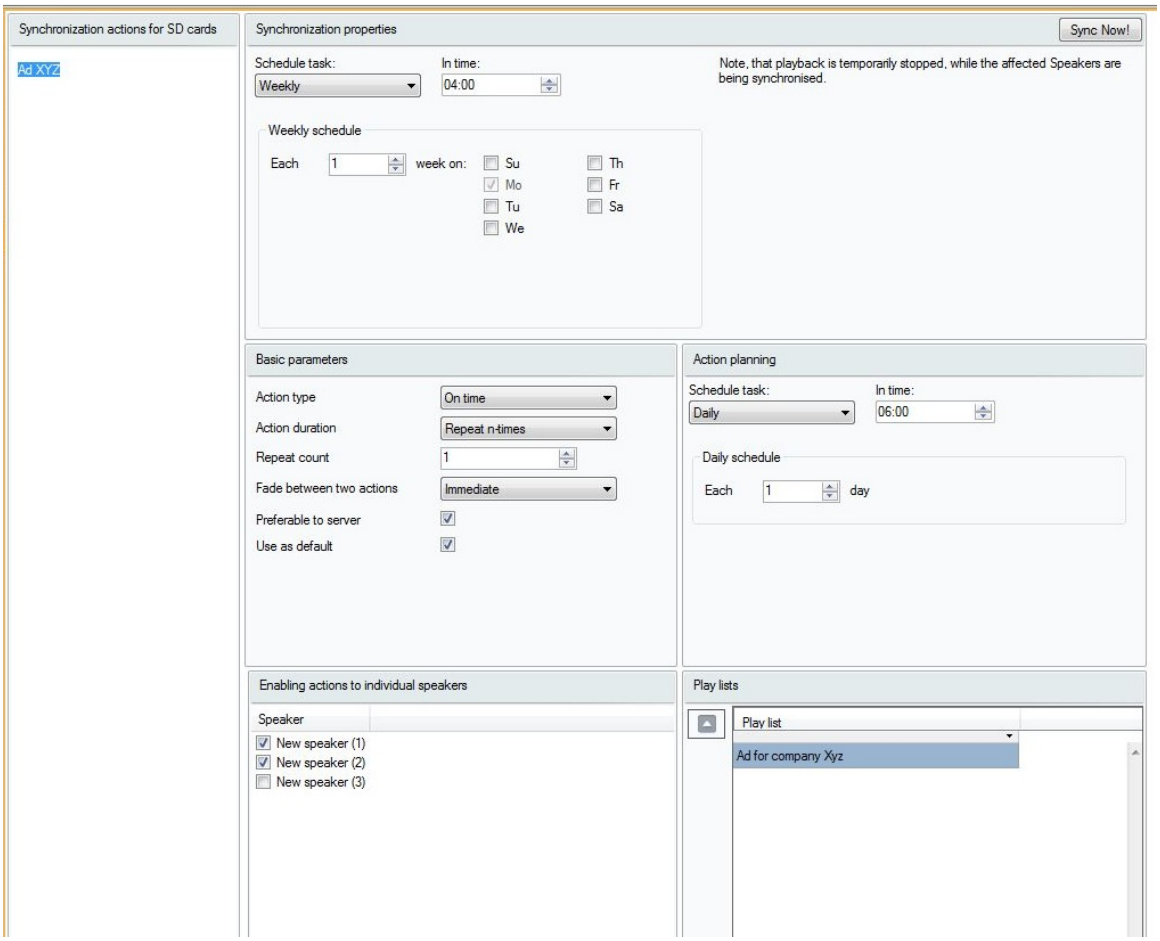

Figure: Example of Xyz Ad Setting

Create a new action called "Xyz advertisement" via the Sync Manager tag.

1. Set the weekly synchronisation option in the **Synchronisation properties**, refer to Fig. 6., selecting Monday.
2. Now set the **basic parameters**. Select the **At time** action type and **Repeat n–times** with n=1. Tick off the other options and **Schedule action start**. Suppose you want to play the commercial spot at 6 a.m. every day. Therefore, select **Daily planning with start at 6:00**.
3. Select the **2N® NetSpeaker** units in the **Enabling action to individual speakers** to be involved in the action.
4. **Caution! Make sure that the selected 2N® NetSpeaker units contain the SD cards via the Destinations & Zones tag**.
5. Now select the playlist to be saved on the SD card and played at the defined time. Retrieve a floating menu in the **Playlist** section with the right–hand mouse button and select **Add**. Choose Playlist –> "Xyz advertisement" from the pop–up menu.
6. **Save the setup!**

2.6 Users

What you should know

- This menu helps you create users and specify user rights.
- A created user can log in to the ControlPanel, Player, Console and/or API.

Users

The Users tag is used for user administration. It helps you create and delete users and change user rights (user roles).

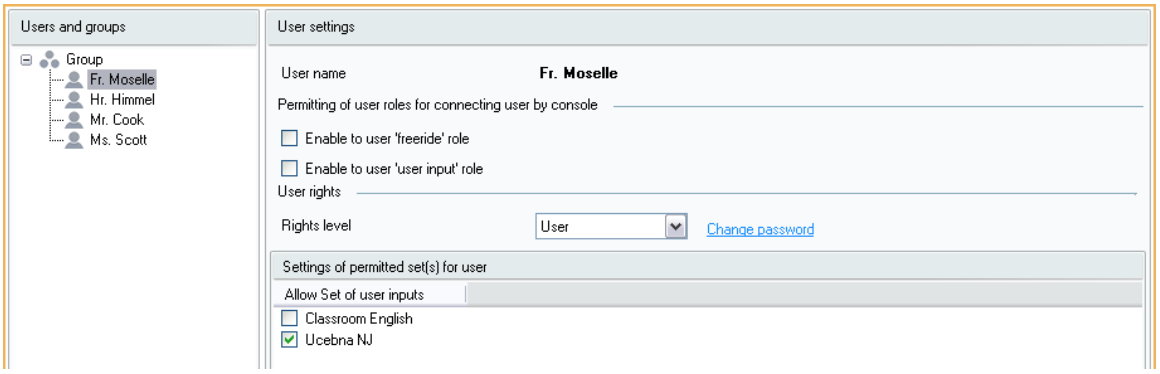

Figure: Users Tag Layout

Figure shows the Users tag with the **User settings** to the right. You can define the user rights for Console or Player user connection.

- **"Freeride" role** - this user itself defines what and where to be played. This user has the right to play without restrictions and without using pre-defined sessions. The user has access to all destinations and its broadcasting has the highest priority.
- **"User input" role** - this user will be assigned the "home" session for broadcasting by the system administrator.

Rights level - select the User or Administrator level. The Administrator cannot log in to the Console and Player, but may use the ControlPanel software.

Sets of user inputs

The system administrator defines the set of user inputs to certain sessions; refer to the Audio Sources tag for details. These inputs can then be assigned/provided to users in the **Permit user connection to set of user inputs** section. This section includes a list of all sets of user inputs and helps you assign a user to an input by ticking off the option.

2.7 Administrator

What you should know

- Access via API is restricted to 10 clients by default.
- Multicast is active on addresses 239.0.0.0/8 in **2N® NetSpeaker** by default.
- Trace can be saved and help communicate your problem to the **2N® Technical Support** department.
- Scanner allows you to see **2N® NetSpeaker** even if **2N® NetSpeaker** doesn't obtain an IP address from network. For proper function you have to assign IP address manually in this case.
- Virtual Network adapters may cause malfunction of **2N® NetSpeaker** scanner.

Administrator

The **Administrator** tag helps you set other **2N® NetSpeaker** parameters and monitor the state of the system. The tag contains general settings and administration.

General Settings

General settings are provided in this section.

General – set the ControlPanel language.

Audio devices – select the output for listening–in. Listening–In allows you to listen to sessions locally and select a device to which the sound will be routed. These devices depend on the PC configuration.

Sessions – set more session parameters.

- **Show sessions from connected consoles** – allows you to see even sessions that are created by the Console and Player users with Freeride privilege.

Generated playlists – helps you create playlists automatically over one or more directories based on preset rules. Click on **Add directory** to select the audio file directory.

Press the tick button to define:

- whether the playlists shall be generated from the subdirectories; or
- whether the playlists shall be generated according to genres, authors, directories or albums.

Save the generated playlists and use the genre/author/directory/album tick button to display the selected playlist type.

Licence - this tab is used for the licences administration. Licences allows you to use advanced functions of the **2N® IP Audio System**. After Windows upgrade or HW upgrade the licence will be valid automatically.

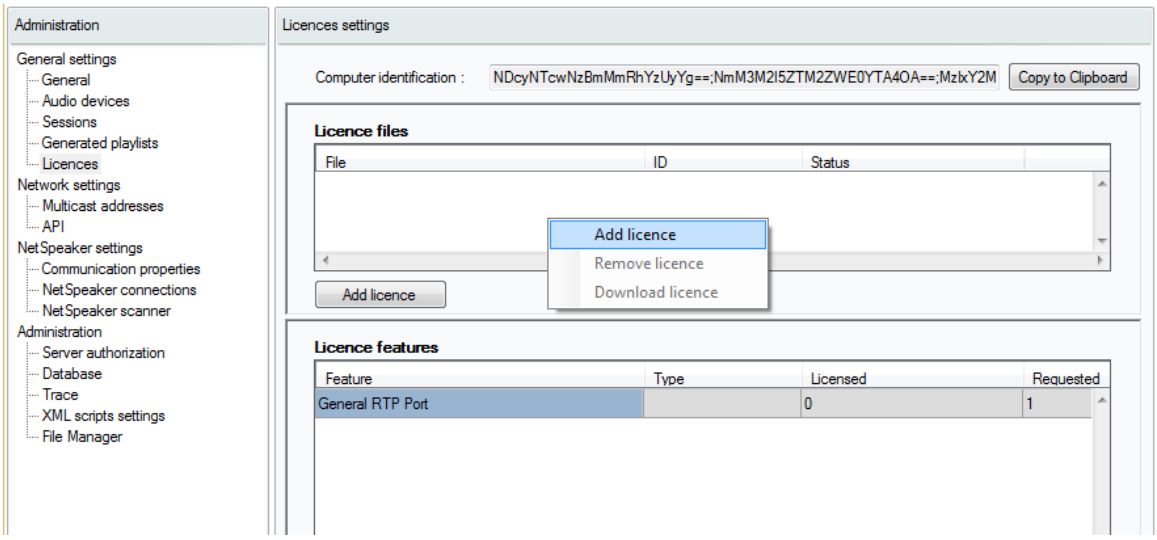

Figure: Licence settings

Network Settings

Multicast addresses – set the multicast addresses. Select multicast for address scope, multicast for port scope or single IP address transmission. The default address scope is 239.0.0.0/8. Fig. 1 shows the default setting for address scope.

API – set the port for **2N® NetSpeaker** API connection and client restriction.

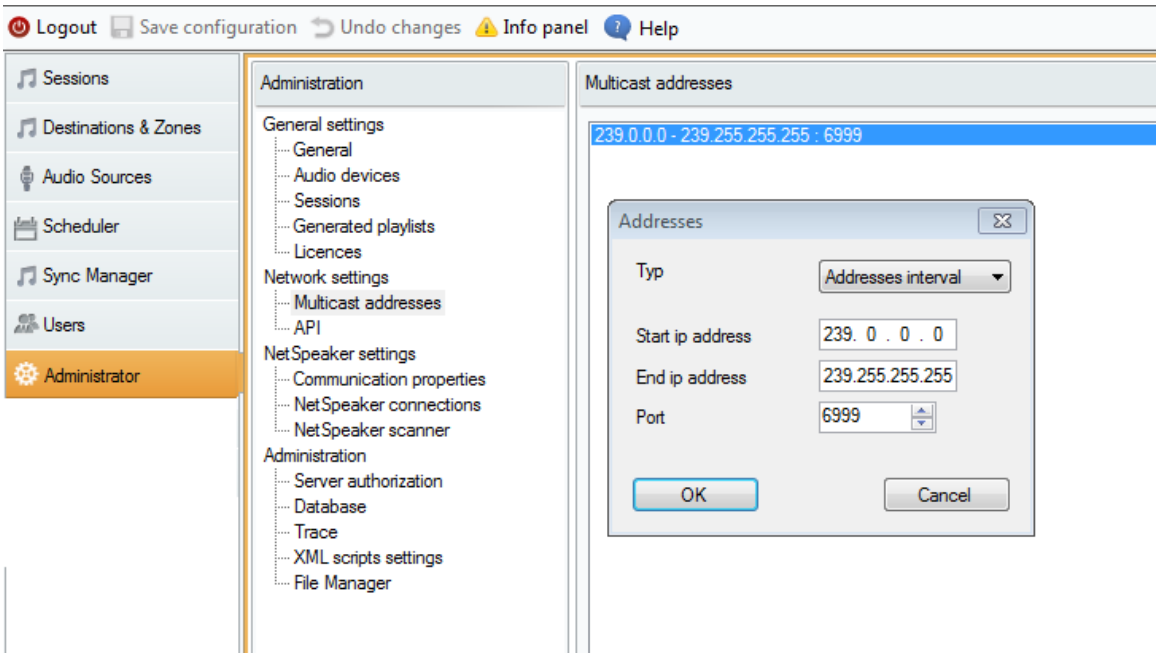

Figure: Multicast Setting Options

2N® NetSpeaker Settings

Communication properties – set the server domain for the connected **2N® NetSpeaker** units not to connect to another **2N® NetSpeaker** Server in the network.
NetSpeaker connections – set the connection parameters for **2N® NetSpeakers** in the passive mode (refer to the **2N® NetSpeaker** scanner below). **Save** the parameters to establish connection to **2N® NetSpeaker.**

Parameters:

- **Connection timeout** – define the time interval between the connection making attempts.
- **IP address** – set the **2N® NetSpeaker** IP address.
- **IP port** – set the **2N® NetSpeaker** port; 6998 is the default value.
- **Automatic firmware upgrade** – disable the **2N® NetSpeaker** firmware upgrade.

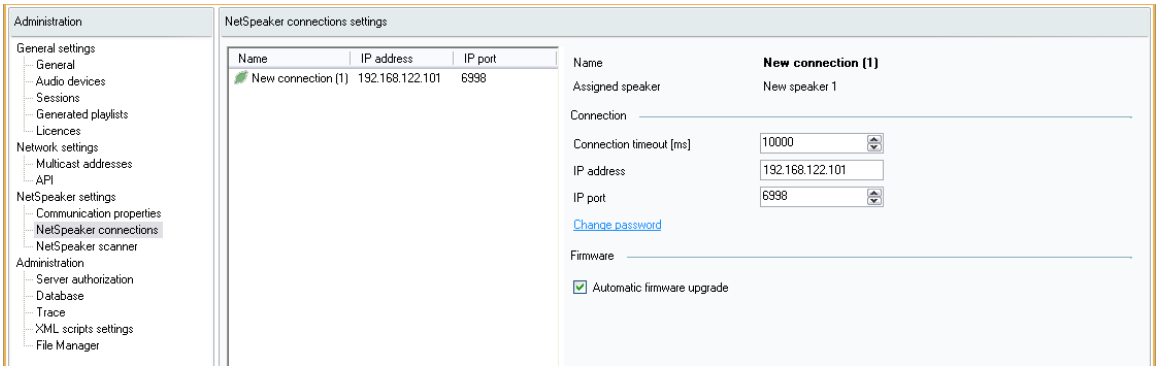

Figure: Connection Parameters

NetSpeaker scanner – use the scanner to search the **2N® NetSpeaker** units and their settings in the network. All the speakers available in the network are displayed to the left. Having selected a speaker, you can change its parameters in the right–hand part to make it connect to the **2N® NetSpeaker Server** automatically (active mode), or using the **NetSpeaker connections** parameters.

Parameters:

- **IP address** – **2N® NetSpeaker** IP address.
- **IP mask** – network mask.
- **IP gateway** – network gateway.
- **Server IP address** – **2N® NetSpeaker Server** IP address.
- **Domain** – **2N® NetSpeaker** with the set domain is assigned to the server with the same domain. **2N® NetSpeaker** automatically takes over the domain of one of the servers in the network.
- **Description** – enter optional details on the selected **2N® NetSpeaker** unit.
- **Mód**– select the passive/active/search mode.
  - **passive mode** means that it is necessary to set connection to **2N® NetSpeaker** from the server side in the **NetSpeaker settings** –> **NetSpeaker connections** section.

- **active mode** means that **2N® NetSpeaker** gets connected to the **2N® NetSpeaker** Server automatically using the **Server IP address** parameter.
- **search mode** means that **2N® NetSpeaker** finds the **2N® NetSpeaker Server** in the network automatically, takes over the domain and gets connected to the Server.

- **DHCP client on** – select on/off to determine whether **2N® NetSpeaker** shall use the network setting obtained from the network via the DHCP, or use the statically set parameters.

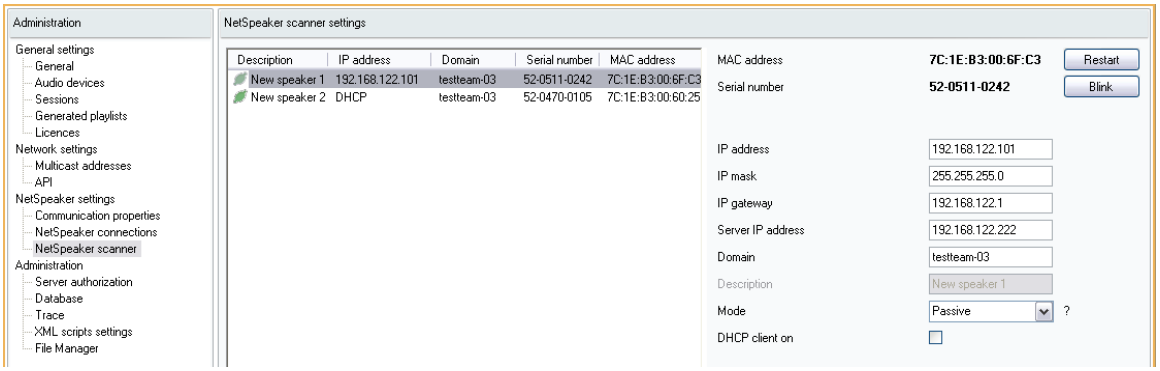

Figure: Scanner

Administration

Server authorisation

- **Server authentication to 2N® NetSpeaker** – set the password for server authentication to **2N® NetSpeaker**.
- **2N® NetSpeaker authentication to server** – set the password for **2N® NetSpeaker** authentication to server.
- **Administrator login authentication password** – change the main administrator password of the **Administrator** user.

Database – display database tables.

Trace – full listing of information exchange between the **2N® NetSpeaker** system components. Use the floating menu to retrieve more functions such as:

- **Settings** – set automatic trace saving onto a disk of the PC where the ControlPanel is running.
- **Filter** – create a filter for existing IDs or characters (**string**).
- **Save to file** – save the current system trace using the floating menu –>Save to file.
- **Import/Export settings** – save settings of colour rules for filters.

XML script setting – display the XML scripts while configuring **2N® NetSpeaker** as full or simplified listings – listing of debug functions.

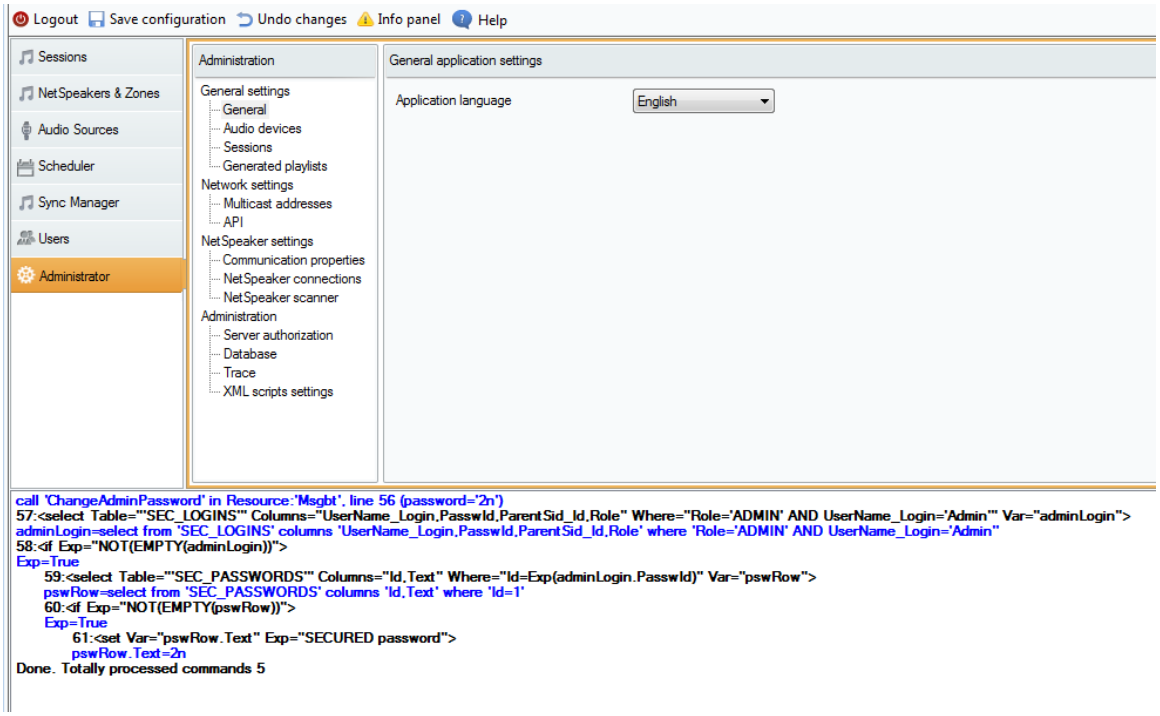

Figure: XML Script for Password Saving

File manager – It allows you to manipulate with folders and files on your discs.

- **Refresh–** refresh current path in folder
- **Delete–** delete file/folder
- **Rename–** rename file/folder
- **Create directory–** Create directory in current folder
- **Import file–** Copy file to current folder
- **Export file–** Copy file from current folder

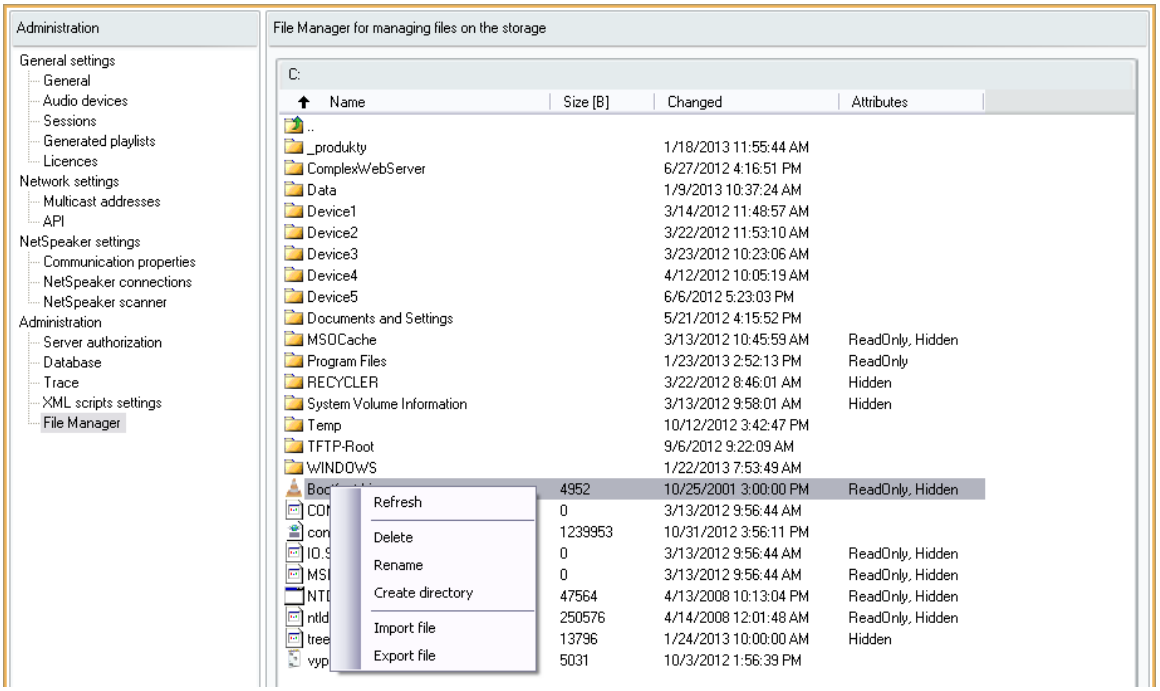

Figure: File manager

3. Manual for Console software

2N® IP Audio Console is user friendly software used for broadcasting of announcements over **2N® IP Audio System**. **2N® IP Audio System** has to be set by administrator before using this application.

In this section:

- 3.1 Settings and Connection

3.1 Settings and Connection

What you should know

- The **Console** application allows for sending audio from a microphone or playing files.
- **2N® NetSpeaker** recognises 3 levels of rights, which are managed by the system administrator.
- **CAUTION:** Freeride is the highest priority user role and shall be preferred in all zones.

Console Application

The Console program is used for broadcasting to pre–defined sessions or inputs for **2N® NetSpeaker** users. It is primarily designed for broadcasting audio **via microphone** or audio/music in the mp3 format (wma, ogg).

Connection and Settings

The login screen is displayed upon **Console** start. Create the user name and password using the **ControlPanel** program or ask your system administrator to create and assign the rights.

Enter the user name and password into the dedicated fields in the Console window upon start. Moreover, you have to configure the correct host name or IP address for login. Click on the setting pictogram in the program header, see Fig. 1, and then on **Server settings** to get into configuration.

Use the **Language settings** to modify the application language.

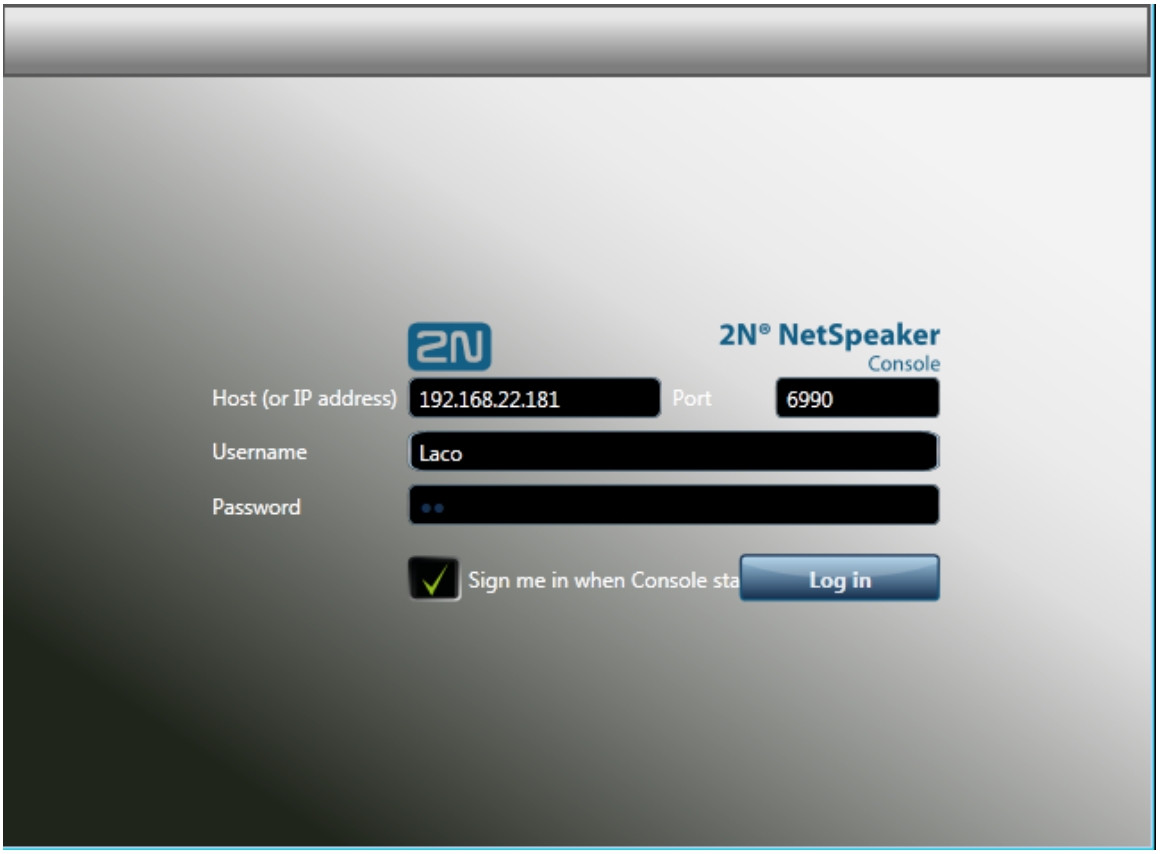

Figure: Login via Console

Having set all the necessary parameters and entering your user name and password, log in. If successful, you get to the **Console** screen to select your role.

User Roles

This screen helps you select a role after login to the **Console** program. Figure shows the window for a user with all roles. Refer to other parts of the manual for details on the roles.

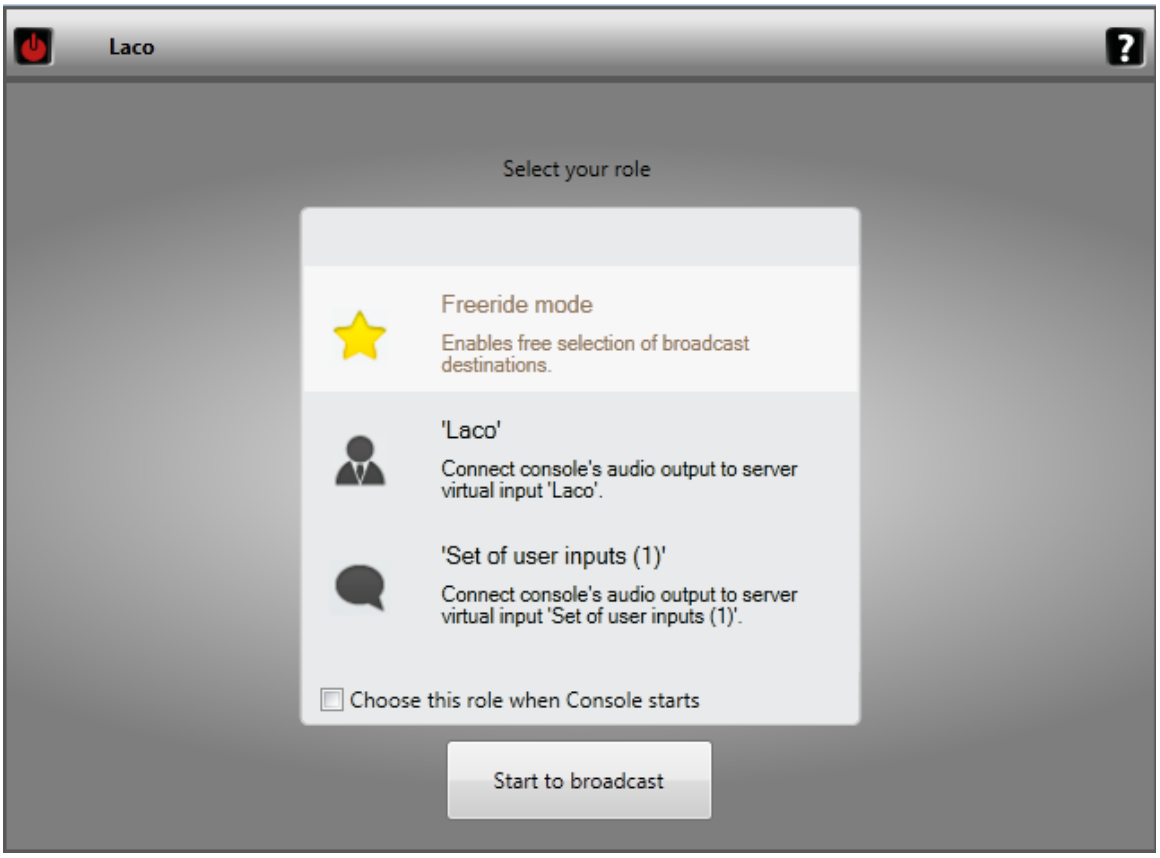
Laco
Select your role
Freeride mode
Enables free selection of broadcast destinations.
'Laco'
Connect console's audio output to server virtual input 'Laco'.
'Set of user inputs (1)'
Connect console's audio output to server virtual input 'Set of user inputs (1)'.
Choose this role when Console starts
Start to broadcast

Figure: Console Roles

When you have selected a role, the screen will display the selected role, but the appearance is similar in all cases. New pictograms and the role name get displayed in the application header. To change the role, use the **human** pictogram, which returns you to the **role selecting window**. The **"power off"** pictogram is used for **logout** fro m the **Console** application.

General Console Control

Primarily, Console is designed for broadcasting sounds **via microphone** or audio/music in the mp3 format. The left section with the microphone picture controls the microphone and the middle section – List of sounds – helps play audio files. Press the "Add" button to add a sound to the application. The right–hand section is used for input check and control. Refer to Figure for the **Console** program control.

Figure: View of Console Control

Output – there are different outputs for different roles and so refer to Subss. **1.3.1 – 1.3.3.** for details.

List of sounds – or list of audio/music sources in files. Click on **Add** and select the required file. Play this file using the **Play** button.

Microphone – the left window section controls the hardware microphone of the PC where Console is running.

- **TALK button** – used for microphone activation. Upon activation, the ON AIR sign goes on and the button changes into **MUTE**. You can broadcast even during audio playing from a file.
- **AUTOMUTE button** – used for enabling the "Automatic microphone activation" function. When you press the button, the **Automute** sign goes on. Let us **give an example**: The "College radio" broadcasts a few songs every evening and the presenter announces every song. In this case, the presenter selects a song from the file at the beginning of broadcasting. He or she selects **Automute** and can talk when the song is over – **Automatic microphone activation**. When the Play button is pushed for another song, the microphone is **automatically deactivated** and the listeners do not hear the studio noise.

You can enable **Listening in** in the Console application too. To do so, push the **ON** but ton to the right of the lower screen. Listening in **is used** for activation of local listening to played files or microphone sound. Select the device to listen in via the

Setting–>Audio settings menu.

Freeride mode broadcasting

The Freeride user is assigned the highest user rights and can thus broadcast and play with the highest priority. This user selects the destination itself by ticking off the **2N® NetSpeaker** units in the **List of speakers/zones**. Refer to Figure.

Figure: Freeride Role

Broadcast as "user"

Logged in as a user, you cannot choose where to broadcast. Your user role authorises you to broadcast to sessions to which you are assigned as a user input. Contact your system administrator for more information.

Broadcast as "set of user inputs"

Logged in as a set of user inputs, you cannot choose where to broadcast. Your user role authorises you to broadcast to sessions which contain the set of user inputs assigned to you. Contact your system administrator for more information.tails on the roles.

4. Manual for Player software

The **2N® IP Audio Player** program helps you play files and playlists in a simple and comfortable manner. It can be used by Freeride users only.

In this section:

- 4.1 Software Control

4.1 Software Control

What you should know

- **CAUTION:** Freeride is the highest priority user broadcasting role and shall be preferred in all zones.

Player Application

The Player program helps you play files and playlists in a simple and comfortable manner. It can be used by Freeride users only. No other user is authorised to use the Player application.

Connection

Upon launch, the login window gets displayed. Change the **server** address to the address defined by the system administrator. The same applies to the login a password. Use Menu –> Tools to change the application language.

Playing

The purpose of the application is to provide easy and comfortable control. Hence, the playing settings are very simple and intuitive. Push the buttons in the lower part to add files to be played to the application. The following options are available:

- **Add mp3 files** – add files to the playlist.
- **Delete selected items from playlist** – remove songs from the playlist.
- **Add mp3 from directory** – add a directory to the playlist.
- **Save playlist into files** – save the playlist into an **.m3u** file on a local disk.
- **Add playlist** – add an empty playlist to the Player application.
- **Rename current playlist** – rename the currently selected playlist.
- **Delete current playlist** – delete the currently selected playlist.
- **Select playlist** – select one of the playlist created and modify the current playlist.

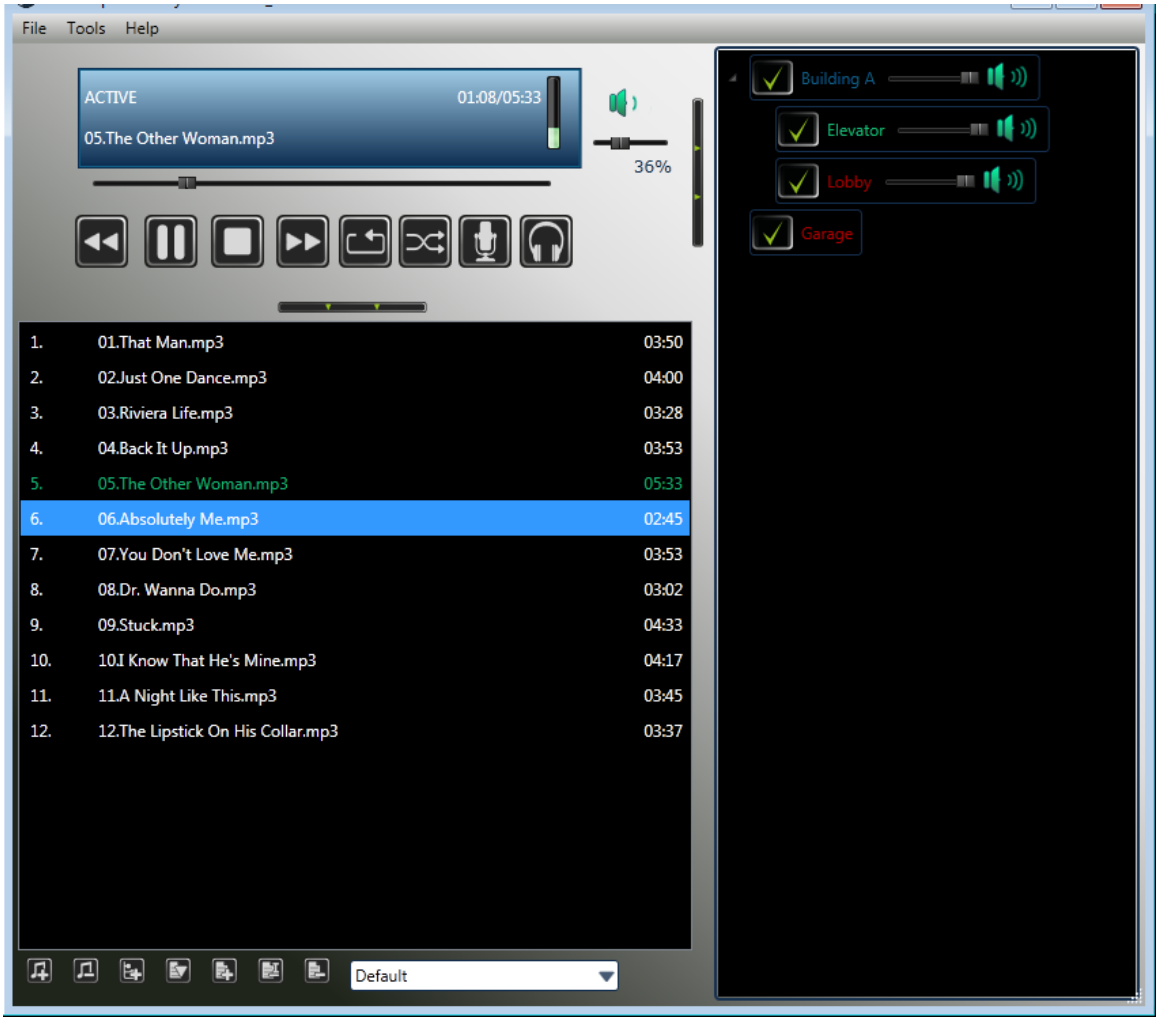

Figure: Login via Player

Having prepared a playlist, simply select the speakers/zones/RTP destinations for playing in the right–hand section of the screen. You can also control volume of each **2N® NetSpeaker**.

Start playing by pushing the Play button. Playing will discontinue the current playing processes in all zones selected by you. If you want to announce a message through the microphone, you can **broadcast to all selected zones via microphone too**. Click on **Activate microphone** to switch on the microphone.

Local Playing Settings

In addition to **2N® NetSpeaker** playing, the Player application allows you to play files locally too. Find the settings for local sources in **Menu–>Tools–> Local source settings**. Select the source for microphone and volume in the window (Figure "Local sources"). The same settings are used for listening in – select the HW sources for the output from PC and set the volume level.

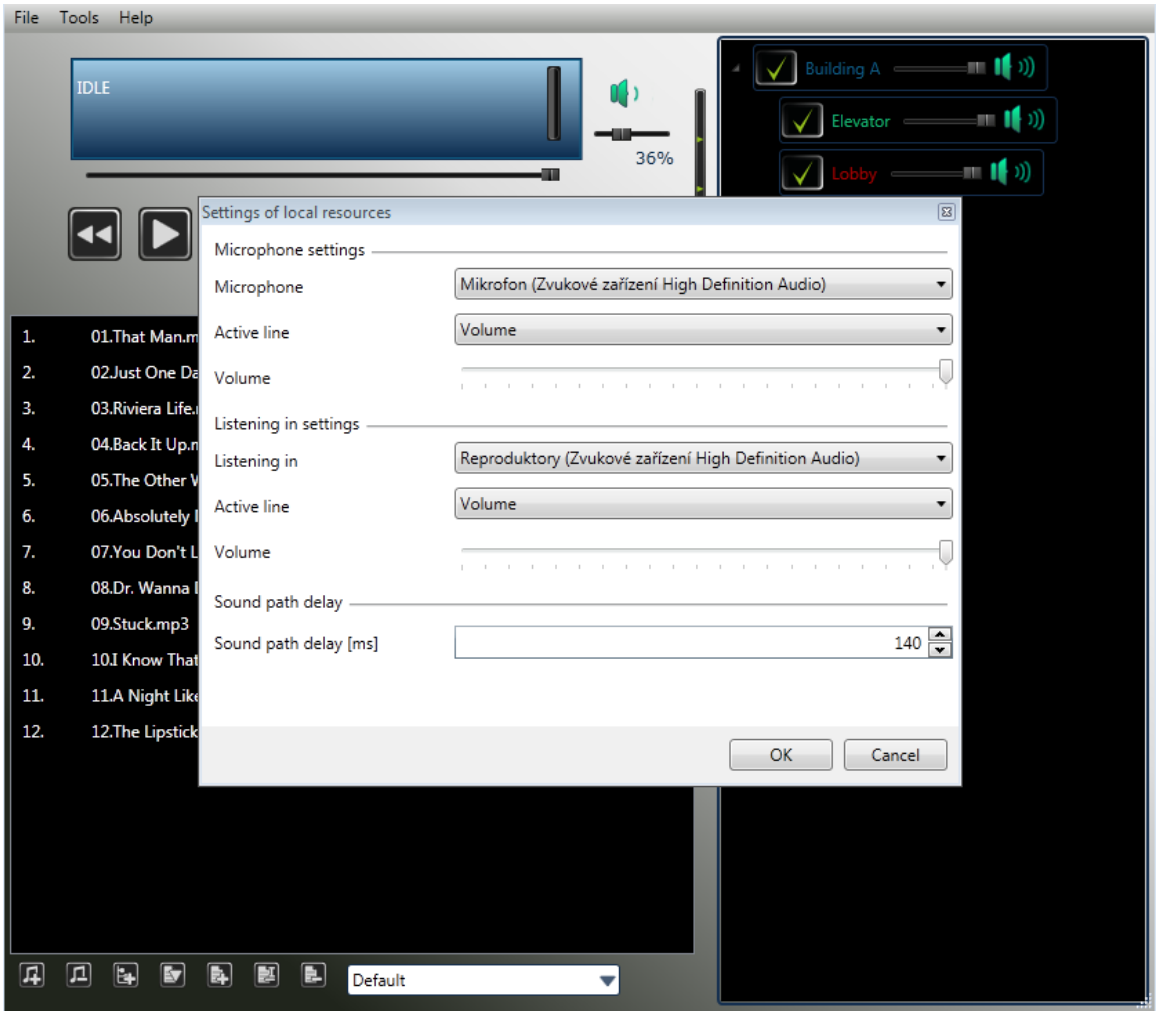

Figure: Local Sources

5. 2N® NetSpeaker server API manuals

2N® NetSpeaker Server API is used for NetSpeaker Server control by XML commands and request. You are free to build your own application for NetSpeaker Server control.

In this section:

- 5.1 Basic Properties
- 5.2 Session Configuration
- 5.3 Audio Input Configuration
- 5.4 Playlist Configuration
- 5.6 File explorer (Playlist mgmt)
- 5.7 Internet radio configuration
- 5.8 Generated playlists
- 5.9 IP Audio System HTTP API manual

5.1 Basic Properties

This sections provides you by basic **2N® NetSpeaker Server API** commands and response.

In this section:

- Basic Information
- Opening Communication
- Authorisation
- Server Version
- Active Connection Check
- Server Time Check

Basic Information

XML Interface for Network Services

Local Connections

By default, the **2N® NetSpeaker Server** listens on TCP port 6543 on all eth server ports. External applications are connected to this port.

Communication between external applications and the **2N® NetSpeaker Server** alway s starts with the BIND command. This command is sent by the client server.

Applications cannot continue communicating until they receive the <bind Status="OK"/> reply from the **2N® NetSpeaker Server**. The server thus confirms the connection and creation of a communication channel.

Clients can choose to implement a full XMPP client or to simply run a streaming XML parser, such as the libxml2 Simple API for XML (SAX) parser.

XML Interface

After communication initialisation is completed, the **2N® NetSpeaker Server** sends <bind Status="OK"/>. There are two types of XML messages for communication:

The request and response messages define the request-message content using the "<msg Id=" ID information element command, the "<CTI_IE_REFERENCE Ref" tag and IE </msg> termination at the end of message. This type of XML message is used for communication commands and replies from the **2N® NetSpeaker Server**. This type of communication is also used for event registration and unregistration of events.

Event messages use the "<CTI_IE_REFERENCE Ref" tag. This type of IE is used for recognition of responses sent asynchronously on events in the **2N® NetSpeaker Server**.

Message Request and Response

The **2N® NetSpeaker Server** XML interface has two different formats:

Request

```
<msg Id="command identify">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_REQUEST >
</msg>
```

Response

```
<msg Id="command identify">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result=""/>
</msg>
```

This document also contains XML schemes which prove details on the incoming and outgoing combinations using the XML request and response.

Opening Communication

2N® NetSpeaker Server – Starting Communication

By default, the **2N® NetSpeaker Server** listens on TCP port 6543 on all eth server ports. External applications are connected to this port.

Communication between external applications and the **2N® NetSpeaker Server** alway s starts with the BIND command. This command is sent by the server client.
The application cannot continue communicating until it receives the <bind Status="OK"/> reply from the **2N® NetSpeaker Server**. The server thus confirms the connection and creation of a communication channel.

Request
<bind ConnType="LOCAL" AppName="SpkCtiTest"/>

Response
<bind Status="OK"/>

Error message
<error Layer="XMLB">UNBOUND_STREAM</error>

The following answers have been added for different situations:

NNB_XML_STATUS_OK ...external application can start sending other commands.

NNB_XML_STATUS_ALREADY_BOUND ... application ignores this error and can send commands, bind is no longer needed.

NNB_XML_STATUS_NEIGHBOUR_IS_UNREADY ... application must repeat the bind command after a time delay of 100 ms at least.

No new commands can be sent until the CTI interface responds to the bind command.

If the application does not receive an answer in about 1 sec, it repeats the bind command.

Authorisation

The AppName item is used for application identification. The application cannot continue communicating until it receives the <bind Status="OK"/> reply from the **2N® NetSpeaker Server**. The server thus confirms the connection and creation of a communication channel.

Explicit authorisation – LOGON method

Or, you can enter your login and password simply as follows:

1. Check whether the library offers the LOGON method after receiving the request for authorisation and, if yes, then:
2. Send the instruction <auth Method="LOGON" LoginName="..." Password="..."/>; where ... is to be replaced with the user name and password (default name: Admin, password: 2n).
3. Wait for the reply: <auth Method="LOGON" Status="OK"/>.

If the reply contains the Status attribute with OK value, it means that the XML bridge has been successfully authorised with the data received. Any different value of the Status attribute means that access has been denied.

Besides the <auth Method="..." Status="OK"/> reply, successful authorisation is manifested by the following reply from the XML bridge to bind: <bind Status="OK"/>. This signals that the communication channel has been successfully configured and authorised and is ready for sending messages in both directions now.

Request
<bind ConnType="LOCAL" AppName="SpkCtiTest"/>

Response
<auth>
<method Name="LOGON"/>
</auth>

Request
<auth Method="LOGON" LoginName="login" Password="password"/>

Response
<auth Method="LOGON" Status="OK"/>

Response
<bind Status="OK"/>

The following answers have been added for different situations:

NNB_XML_STATUS_OK ... external application can start sending other commands.

NNB_XML_STATUS_ALREADY_BOUND ... application ignores this error and can send commands, bind no longer needed.

NNB_XML_STATUS_NEIGHBOUR_IS_UNREADY ... application must repeat the bind command after a time delay of 100 ms at least.

No new commands can be sent until the CTI interface responds to the bind command.

If the application does not receive an answer in about 1 sec, it repeats the bind command.

Server Version

Enter the command to find the current server time.

Request

```
<msg Id="CTI_GET_DATETIME_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_GET_DATETIME_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_TIME Time="2011/12/1 12:11:14"/>
<CTI_IE_TZ_ID Id="37" TZStatus="STANDARD"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Active Connection Check

Enter the command to check if the communication with the server is still active.

Request

```
<msg Id="CTI_ALIVE_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_ALIVE_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Server Time Check

Enter the command to find the current server time.

Request

```
<msg Id="CTI_GET_DATETIME_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_GET_DATETIME_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_TIME Time="2011/12/1 12:11:14"/>
<CTI_IE_TZ_ID Id="37" TZStatus="STANDARD"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

5.2 Session Configuration

This sections helps you with all commands and response related with sessions e.g. start and stop playing and more.

In this section:

- List of All Sessions
- List of All Sessions and Input Sources Assigned to Them
- Activate Session
- Deactivate Session
- Add Session
- Edit Session
- Remove Session
- Session State Monitoring
- Deactivate Session State Monitoring

List of All Sessions

Enter this command to list all existing sessions along with the following information: SessionId = session ID, Name = session name, Priority, PanelUserId = only for console panel, PanelMode = only for console panel, PanelVirtualInputId = only for console panel, FreerideId = only for console panel.

Request

```
<msg Id="CTI_NSPK_GET_ALL_SESSIONS_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_GET_ALL_SESSIONS_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_NSPK_IE_SESSION SessionId="0x4" Name="Moje session
nova" Flags="0x0" Priority="1" Channel="0" MasterVolume="4032"
MasterBalance="0" MasterFadeTime="0" PanelUserId="0xFFFFFFFF"
PanelMode="USER" PanelVirtualInputId="0xFFFFFFFF"
FreeRideId="0xFFFFFFFF"/>
<CTI_NSPK_IE_SESSION SessionId="0x5" Name="New session (1)"
Flags="0x0" Priority="1" Channel="0" MasterVolume="4096"
MasterBalance="0" MasterFadeTime="0" PanelUserId="0xFFFFFFFF"
PanelMode="USER" PanelVirtualInputId="0xFFFFFFFF"
FreeRideId="0xFFFFFFFF"/>
</msg>
```

List of All Sessions and Input Sources Assigned to Them

The command lists all the sessions and the sources assigned to them. A session is defined by the SessionId parameter, the input source by the SourceId parameter and a combination of the Type and Id parameters. SourceId is the primary key of the source allocated to the session and identifies the input source when multiple sources are in a session at the same time. By combining the SessionId and SourceId parameters you get current information on the source in a session such as the currently played file, playing time position, etc. The Type and Id parameters help acquire general information on the source, i.e. the source type, source files, file Id and file duration.

Request

```
<msg Id="CTI_NSPK_GET_ALL_SESSIONS_SOURCES_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_GET_ALL_SESSIONS_SOURCES_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_NSPK_IE_SESSION_SOURCE SessionId="0x4" SourceId="0x5"
Flags="0x12" Type="PLAY_LIST" Id="0x1" Volume="4032"
Balance="7" FadeTime="0"/>
<CTI_NSPK_IE_SESSION_SOURCE SessionId="0x4" SourceId="0xB"
Flags="0x12" Type="PLAY_LIST" Id="0x4" Volume="4096"
Balance="0" FadeTime="0"/>
<CTI_NSPK_IE_SESSION_SOURCE SessionId="0x5" SourceId="0xA"
Flags="0x12" Type="PLAY_LIST" Id="0x5" Volume="153"
Balance="0" FadeTime="0"/>
</msg>
```

Activate Session

Enter this command to enable a session. A session is defined by the CmdPar1 = SessionId parameter. If you specify a wrong SessionId, the server processes the command and sends the OK message, but no session will be activated.

Request

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="ACTIVATE_SESSION"
CmdPar1="0x4"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Deactivate Session

Enter this command to disable a session. A session is defined by the CmdPar1 = SessionId parameter. If you enter a wrong SessionId, the server processes the command and sends OK, but no session will be deactivated.

Request

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="DEACTIVATE_SESSION"
CmdPar1="0x4"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Add Session

Enter this command to create a new session. A session is defined by the SessionId parameter. If the value differs from the values in the database, a new session will be created. If the parameter value is equal to the value of an existing session, the existing session with the specified value will be adjusted according to other parameters. Name = session name, Priority, Channel = session channel, MasterVolume = session volume, MasterBalance = session balancing value, MasterFadeTime = time during which the volume or balance change is effective if requested, PanelUserId = relates to the console panel, PanelMode = relates to the console panel, PanelVirtualInputId = relates to the console panel, FreeRideId = relates to the console panel.

Request

```
<msg Id="CTI_NSPK_SET_SESSION_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_SESSION SessionId="0x1" Name="Moje nova
session" Flags="0x0" Priority="1" Channel="0" MasterVolume="4096"
MasterBalance="0" MasterFadeTime="0" PanelUserId="0xFFFFFFFF"
PanelMode="USER" PanelVirtualInputId="0xFFFFFFFF"
FreeRideId="0xFFFFFFFF"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_SET_SESSION_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Edit Session

Enter this command to edit a session. A session is defined by the SessionId parameter. If the value differs from the values in the database, a new session will be created. If the parameter value is equal to the value of an existing session, the existing session with the specified value will be adjusted according to other parameters. Name = session name, Priority, Channel = session channel, MasterVolume = session volume, MasterBalance = session balancing value, MasterFadeTime = time during which the volume or balance change is effective if requested, PanelUserId = relates to the console panel, PanelMode = relates to the console panel, PanelVirtualInputId = relates to the console panel, FreeRideId = relates to the console panel.

Request

```
<msg Id="CTI_NSPK_SET_SESSION_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_SESSION SessionId="0x7" Name="Moje session upravena"
Flags="0x0" Priority="1" Channel="999" MasterVolume="4096"
MasterBalance="0" MasterFadeTime="0" PanelUserId="0xFFFFFFFF"
PanelMode="USER" PanelVirtualInputId="0xFFFFFFFF"
FreeRideId="0xFFFFFFFF"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_SET_SESSION_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Remove Session

Enter the command to pause a source in a session. Defined by the CmdPar1 = SessionId and CmdPar2 = SourceId parameters. If the CmdPar1 and CmdPar2 values are non-existent, the server replies OK, but no source will be suspended.

Request

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="PAUSE" CmdPar1="0x1"
CmdPar2="0x1"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

nebo

```
<msg Id="CTI_NSPK_REMOVE_SESSION_FORCE_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_SESSION_ID SessionId="0x6"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_REMOVE_SESSION_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

nebo

```
<msg Id="CTI_NSPK_REMOVE_SESSION_FORCE_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Error

```
<msg Id="CTI_NSPK_REMOVE_SESSION_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="INVALID_OBJECT"/>
</msg>
```

DB relations:

- must be deleted all objects before deleting the session.

NSPK_SEST_SESSIONS_SOURCES
****

- Delete Source from Session

NSPK_SEST_SESSIONS_DESTS
****

- List of All Sessions and Input Sources Assigned to Them

If CTI_NSPK_REMOVE_SESSION_FORCE_CONF is used all relations will be deleted automatically

Session State Monitoring

Enter the command to create a hook on a session which will periodically send information on the session whenever a change occurs in the session. Defined by the Id = SessionId parameters. If this parameter is -1, the hook will be created for all sessions.

Request

```
<msg Id="CTI_NSPK_CREATE_HOOK_REQ">
<CTI_NSPK_IE_OBJECT Type="SESSION_SOURCE" Id="-1"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_SESSION_SOURCE_INFO_IND">
<CTI_NSPK_IE_SESSION_SOURCE_INFO SessionId="0x2"
SourceId="0x3" PlayState="PLAYING" ActFileId="0x11"
ActFile="C:\Documents and Settings\jsvoboda\Plocha\Download\Adele
- 21\01 Rolling in the Deep.mp3" ActDuration="229347"
State="ACTIVE" StateInfo="File(ACTIVE); Resampler(ACTIVE)"/>
</msg>
```

IE

<documentation IE="CTI_NSPK_IE_SESSION_SOURCE">
<member Type="KER_T_INT" Name="SessionId" Brief="Primary key source (link to SESSION) "/>
<member Type="KER_T_INT" Name="SourceId" Brief="Primary key source (link to SESSION_SOURCE) "/>
<member Type="NSPK_E_SES_PLAY_STATE" Name="PlayState" Brief="Playback status according NSPK_E_SES_PLAY_STATE "/>
<member Type="KER_T_INT" Name="ActFileId" Brief="Currently playing file (id corresponds FileId of PLAY_LIST) "/>
<member Type="KER_P_CHAR" Name="ActFile" OffsetPointer="true" Brief="Name of the currently playing file "/>
<member Type="KER_T_INT" Name="ActDuration" Brief="The length of the file in ms "/>
<member Type="NSPK_E_STATE" Name="State" Brief="Current status according NSPK_E_STATE source session "/>
<member Type="KER_P_CHAR" Name="StateInfo" OffsetPointer="true" Brief="Lyrically divorced Resource "/>
<documentation>

<documentation Enum="NSPK_E_SES_PLAY_STATE">
<item Name="STOPPED" Brief="Play is stopped "/>
<item Name="READING" Brief="Reads the next file in the "/>
<item Name="PLAYING" Brief="Now Playing "/>
<item Name="PAUSED" Brief="Playback is zapausováno "/>
<documentation>

<documentation Enum="NSPK_E_STATE">
<sure these items are sorted according to priority!!>
<item Name="ERROR" Brief="When opening the device error "/>
<item Name="OPENING" Brief="The device is currently open "/>
<item Name="CLOSING" Brief="The device is just closing "/>
<item Name="IDLE" Brief="The device is not open "/>
<item Name="ACTIVE" Brief="The facility is open and functional "/>
<documentation>

Deactivate Session State Monitoring

Enter this command to cancel the hook on a session. Defined by the Id = SessionId parameter. If this parameter is -1, the hook will be cancelled for all sessions.

Request

```
<msg Id="CTI_NSPK_DESTROY_HOOK_REQ">
<CTI_NSPK_IE_OBJECT Type="SESSION_SOURCE" Id="-1"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_DESTROY_HOOK_CONF">
<CTI_IE_RESULT Result="OK"/>
</msg>
```

5.3 Audio Input Configuration

This sections helps you with all commands and response related with sources e.g. adding source to session, activating/deactivating source in session etc. .

In this section:

- Add Source to Session
- Edit Source in Session
- Delete Source from Session
- Activate Source in Session
- Deactivate Source in Session
- Pause Source in Session
- Skip to Next Line in Source
- Skip to Previous Line in Source
- Smooth Change of Source Volume
- Smooth Change of Source Balance
- Set File Position in Source

Add Source to Session

Enter the command to add an input source to a session. The session is defined by the SessionId parameter and the source by the Type and Id parameters. SourceId defines the source only within the session. If the SessionId and SourceId parameters match, the source with the defined SourceId is replaced with a new source defined by the Type and Id parameters. If you specify a non-existent SessionId, the server will return an error message.

Request

```
<msg Id="CTI_NSPK_SET_SESSION_SOURCE_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_SESSION_SOURCE SessionId="0x1" SourceId="0x2"
Flags="0x1A" Type="PLAY_LIST" Id="0x1" Volume="4096"
Balance="0" FadeTime="0"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_SET_SESSION_SOURCE_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Error

```
<msg Id="CTI_NSPK_SET_SESSION_SOURCE_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="REJECTED"/>
</msg>
```

Edit Source in Session

Enter the command to adjust the session input source. The session is defined by the SessionId parameter and the source by the Type and Id parameters. SourceId defines the source only within the session. If the SessionId and SourceId parameters match, the source with the defined SourceId is replaced with a new source defined by the Type and Id parameters. If you specify a non-existent SessionId, the server will return an error message.

Request

```
<msg Id="CTI_NSPK_SET_SESSION_SOURCE_REQ">
<CTI_IE_REFERENCE Ref="0x422"/>
<CTI_NSPK_IE_SESSION_SOURCE SessionId="0x4" SourceId="0xD"
Flags="0x10" Type="PLAY_LIST" Id="0x1" Volume="1024"
Balance="0" FadeTime="0"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_SET_SESSION_SOURCE_CONF">
<CTI_IE_REFERENCE Ref="0x422"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Delete Source from Session

Enter the command to remove a source from a session. The session is defined by the SessionId parameter and the source by the SourceId parameter. If you specify a non-existent SessionId or SourceId, the server will return an error message.

Request

```
<msg Id="CTI_NSPK_REMOVE_SESSION_SOURCE_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_SESSION_SOURCE_ID SessionId="0x4"
SourceId="0xD"/>
</msg>
```

or

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_FORCE_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_PLAYLIST_ID PlayListId="0x3"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_REMOVE_SESSION_SOURCE_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

or

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_FORCE_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="OK"/>
```

Error

```
<msg Id="CTI_NSPK_REMOVE_SESSION_SOURCE_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="INVALID_OBJECT"/>
</msg>
```

DB relations:

- must be deleted all objects before deleting the playlist.

NSPK_SRVT_OFFLINE_ACTIONS_RECS
****

- neni pristupne v API (zatim)
- tato vazba nelze pres api ani pridat

NSPK_SEST_PLAY_LISTS_FILES
****

- Delete Playlist

If CTI_NSPK_REMOVE_PLAYLIST_FORCE_CONF is used all dpendecies in DB will be delted automatically.

Activate Source in Session

Enter the command to activate a source in a session. Defined by the CmdPar1 = SessionId, CmdPar2 = SourceId and CmdPar3 = FileId parameters. If the CmdPar1 and CmdPar2 values are non-existent, the server replies OK, but no source will be activated. If the CmDPar3 value is -1 or any non-existent value, the source will be played from the first file in the sequence.

Request

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="PLAY" CmdPar1="0x4"
CmdPar2="0x5" CmdPar3="-1"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Deactivate Source in Session

Enter the command to delete a file from an existing playlist. Defined by the PlayListId and FileId parameters.

Request

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_FILE_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_PLAYLIST_FILE_ID PlayListId="0x2" FileId="0x1"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_FILE_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Pause Source in Session

Enter the command to pause a source in a session. Defined by the CmdPar1 = SessionId and CmdPar2 = SourceId parameters. If the CmdPar1 and CmdPar2 values are non-existent, the server replies OK, but no source will be suspended.

Request

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="PAUSE" CmdPar1="0x1"
CmdPar2="0x1"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Skip to Next Line in Source

Enter the command to skip to the next file in the sequence in a source. Defined by the CmdPar1 = SessionId and CmdPar2 = SourceId parameters. If the CmdPar1 and CmdPar2 values are non-existent in the database, the server replies OK, but no change will be executed for any existing session.

Request

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="NEXT" CmdPar1="0x4"
CmdPar2="0x4"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Skip to Previous Line in Source

Enter the command to skip to the previous file in the sequence in a source. Defined by the CmdPar1 = SessionId and CmdPar2 = SourceId parameters. If the CmdPar1 and CmdPar2 values are non-existent in the database, the server replies OK, but no change will be executed for any existing session.

Request

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="PREV" CmdPar1="0x1"
CmdPar2="0x1"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Smooth Change of Source Volume

Enter the command to set the source volume. Defined by CmdPar1 = SessionId, CmdPar2 = SourceId, CmdPar3 = volume and CmdPar4 = transition time from the current value to the new one.

Request

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="SET_VOL" CmdPar1="0x1"
CmdPar2="0x1" CmdPar3="10" CmdPar4="2"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Smooth Change of Source Balance

Enter the command to set the source balance. Defined by CmdPar1 = SessionId, CmdPar2 = SourceId, CmdPar3 = balance and CmdPar4 = transition time from the current value to the new one.

Request

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="SET_BAL" CmdPar1="0x1"
CmdPar2="0x1" CmdPar3="0" CmdPar4="2"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Set File Position in Source

Enter the command to set the position of the played file in a source. Defined by CmdPar1 = SessionId, CmdPar2 = SourceId and CmdPar3 = time in milliseconds.

Request

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="SET_POS" CmdPar1="0x1"
CmdPar2="0x1" CmdPar3="5000"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

5.4 Playlist Configuration

This sections helps you with all commands and response related with playlist e.g. adding songs to playlist, deleting playlists etc. .

In this section:

- List of All Playlists
- Create Playlist
- Edit Playlist
- Delete Playlist
- List of All Files in All Playlists
- Delete File from Playlist

List of All Playlists

Enter the command to list all playlists defined for the server. Defined by the PlayListId, Name and Flags parameters (currently unused).

Request

```
<msg Id="CTI_NSPK_GET_ALL_PLAYLISTS_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_GET_ALL_PLAYLISTS_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_NSPK_IE_PLAYLIST PlayListId="0x1" Name="Muj playlist 1"
Flags="0x0"/>
<CTI_NSPK_IE_PLAYLIST PlayListId="0x4" Name="Novy playlist"
Flags="0x0"/>
</msg>
```

Create Playlist

Enter the command to create a new playlist. Defined by the PlayListId, Name and Flags parameters (currently unused).

Request

```
<msg Id="CTI_NSPK_SET_PLAYLIST_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_PLAYLIST PlayListId="0x1" Name="Muj playlist novy"
Flags="0x0"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_SET_PLAYLIST_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Edit Playlist

Enter the command to modify an existing playlist. Defined by the PlayListId, Name and Flags parameters (currently unused).

Request

```
<msg Id="CTI_NSPK_SET_PLAYLIST_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_PLAYLIST PlayListId="0x7" Name="Muj playlist
upraveny" Flags="0x0"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_SET_PLAYLIST_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

Delete Playlist

Enter the command to delete an existing playlist. Defined by the PlayListId parameter.

Request

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_PLAYLIST_ID PlayListId="0x2"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

List of All Files in All Playlists

Enter the command to list all files in all existing playlists. Defined by the PlayListId, FileId, Priorities, Filename, Duration and Shuffle parameters.

Request

```
<msg Id="CTI_NSPK_GET_ALL_PLAYLISTS_FILES_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_GET_ALL_PLAYLISTS_FILES_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_NSPK_IE_PLAYLIST_FILE PlayListId="0x1" FileId="0x1"
Priority="1" FileName="C:\Documents and Settings\All Users\Data
aplikacĂ-\2N TELEKOMUNIKACE\2N
NetSpeaker\Server\Media\Test.mp3" Duration="54085"
Shuffle="0x0"/>
</msg>
```

Delete File from Playlist

Enter the command to delete a file from an existing playlist. Defined by the PlayListId and FileId parameters.

Request

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_FILE_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_PLAYLIST_FILE_ID PlayListId="0x2" FileId="0x1"/>
</msg>
```

Response

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_FILE_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

5.6 File explorer (Playlist mgmt)

Ptah for accesing directory is necessary. If this is send server will response with list of files, if path is not set Server will response with list of all files.

Samples:

<documentation IE="CTI_NSPK_IE_STORAGE_PATH">

<member Type="CHAR" Name="Path" Brief="Kořenová cesta pro prohledání storage"/>

</documentation>

<documentation IE="CTI_NSPK_IE_STORAGE_ITEM">

<member Type="E_CDRI_STORAGE_ITEM_TYPE" Name="Type" Brief="Typ položky (VOLUME, FILE, DIR)"/>

<member Type="UINT" Name="Size" Brief="Velikost souboru"/>

<member Type="CHAR" Name="Name" OffsetPointer="true" Brief="Název jednotky, adresáře nebo souboru"/>

</documentation>

<documentation Enum="E_CDRI_STORAGE_ITEM_TYPE">

<item Name="FILE" Brief="Soubor"/>

<item Name="DIR" Brief="Adresář"/>

<item Name="VOLUME" Brief="Jednotka"/>

</documentation>

<msg Id="CTI_NSPK_STORAGE_LIST_REQ">

<CTI_IE_REFERENCE Ref="0x420"/>

</msg>

<msg Id="CTI_NSPK_STORAGE_LIST_REQ">

<CTI_NSPK_IE_STORAGE_PATH Path=""/>

<CTI_IE_REFERENCE Ref="0x420"/>

</msg>

<msg Id="CTI_NSPK_STORAGE_LIST_REQ">

<CTI_NSPK_IE_STORAGE_PATH Path="c:"/>

<CTI_IE_REFERENCE Ref="0x420"/>

</msg>

<msg Id="CTI_NSPK_STORAGE_LIST_REQ">

<CTI_NSPK_IE_STORAGE_PATH Path="D:\Hudba"/>

<CTI_IE_REFERENCE Ref="0x420"/>

```
</msg>
```

5.7 Internet radio configuration

<item Name="RADIO" Brief="Internetové rádio"/>
<item Name="GEN_VIEW" Brief="Generované playlisty"/>

Table with radio stations:

<documentation IE="CTI_NSPK_IE_NET_MEDIA_RADIO">
<member Type="KER_T_INT" Name="Id" Brief="(APK) Identifikátor rádia"/>
<member Type="CTI_NSPK_NET_S_MEDIA_RADIO_KEY" Name="Key" Brief="Identifikace rádia"/>
<member Type="NET_E_MEDIA_PROTOCOL" Name="Protocol" Brief="Použitý protokol k získání rádia dle NET_E_MEDIA_PROTOCOL"/>
<member Type="CDRI_T_TCPUDP_PORT" Name="Port" Brief="TCP, UDP Port Protokolu - CDRI_TCPUDP_PORT_UNKNOWN je defaultní port podle protokolu"/>
<member Type="KER_P_CHAR" Name="Url" OffsetPointer="true" Brief="Adresa rádia"/>
<member Type="KER_P_CHAR" Name="Uri" OffsetPointer="true" Brief="Identifikace rádia v rámci URL"/>
<member Type="KER_T_UINT" Name="Delay" Brief="Množství připravených dat než začne přehrávání ms"/>
</documentation>

<documentation struct="CTI_NSPK_NET_S_MEDIA_RADIO_KEY">
<member Type="KER_P_CHAR" Name="Name" OffsetPointer="true" Brief="Název rádia"/>
<member Type="NET_E_MEDIA_GENRE" Name="Genre" Brief="Žánr dle NET_E_MEDIA_GENRE"/>
<member Type="KER_T_UINT" Name="RegionId" Brief="Identifikace regionu"/>
<member Type="KER_T_UINT" Name="LanguageId" Brief="Identifikace jazyka dle KER_E_LANG_ID"/>
</documentation>

<documentation IE="CTI_NSPK_IE_NET_MEDIA_RADIO_ID">
<member Type="KER_T_INT" Name="Id" Brief="(APK) Identifikátor rádia"/>
</documentation>

<documentation Enum="NET_E_MEDIA_GENRE">
<item Name="UNKNOWN"/>
<item Name="ROCK"/>
<item Name="JAZZ" />
</documentation>

<documentation Enum="NET_E_MEDIA_PROTOCOL">
<item Name="HTTP" Brief=""/>
<item Name="RTSP" Brief=""/>
</documentation>

<documentation Enum="KER_E_LANG_ID">
<item Name="DEF" Brief="Default"/>
<item Name="ANY" Brief="None"/>
<item Name="AF" Brief="Afrikaans"/>
<item Name="SQ" Brief="Albanian"/>
<item Name="AR_SA" Brief="Arabic(Saudi Arabia)"/>
<item Name="AR_IQ" Brief="Arabic(Iraq)"/>
<item Name="AR_EQ" Brief="Arabic(Egypt)"/>
<item Name="AR_LY" Brief="Arabic(Libya)"/>

<item Name="AR_DZ" Brief="Arabic(Algeria)"/>
<item Name="AR_MA" Brief="Arabic(Morocco)"/>
<item Name="AR_TN" Brief="Arabic(Tunisia)"/>
<item Name="AR_OM" Brief="Arabic(Oman)"/>
<item Name="AR_YE" Brief="Arabic(Yemen)"/>
<item Name="AR_SY" Brief="Arabic(Syria)"/>
<item Name="AR_JO" Brief="Arabic(Jordan)"/>
<item Name="AR_LB" Brief="Arabic(Lebanon)"/>
<item Name="AR_KW" Brief="Arabic(Kuwait)"/>
<item Name="AR_AE" Brief="Arabic(U.A.E.)"/>
<item Name="AR_BH" Brief="Arabic(Bahrain)"/>
<item Name="AR_QA" Brief="Arabic(Qatar)"/>
<item Name="EU" Brief="Basque"/>
<item Name="BG" Brief="Bulgarian"/>
<item Name="BE" Brief="Belarusian"/>
<item Name="CA" Brief="Catalan"/>
<item Name="ZH_TW" Brief="Chinese(Taiwan Region)"/>
<item Name="ZH_CN" Brief="Chinese(PRC)"/>
<item Name="ZH_HK" Brief="Chinese(Hong Kong SAR, PRC)"/>
<item Name="ZH_SQ" Brief="Chinese(Singapore)"/>
<item Name="HR" Brief="Croatian"/>
<item Name="CS" Brief="Czech"/>
<item Name="DA" Brief="Danish"/>
<item Name="NL" Brief="Dutch(Standard)"/>
<item Name="NL_BE" Brief="Dutch(Belgian)"/>
<item Name="EN" Brief="English"/>
<item Name="EN_US" Brief="English(United States)"/>
<item Name="EN_GB" Brief="English(British)"/>
<item Name="EN_AU" Brief="English(Australian)"/>
<item Name="EN_CA" Brief="English(Canadian)"/>
<item Name="EN_NZ" Brief="English(New Zealand)"/>
<item Name="EN_IR" Brief="English(Ireland)"/>
<item Name="EN_ZA" Brief="English(South Africa)"/>
<item Name="EN_JM" Brief="English(Jamaica)"/>
<item Name="EN_CR" Brief="English(Caribbean)"/>
<item Name="EN_BZ" Brief="English(Belize)"/>
<item Name="EN_TT" Brief="English(Trinidad)"/>
<item Name="ET" Brief="Estonian"/>
<item Name="FO" Brief="Faeroese"/>
<item Name="FA" Brief="Farsi"/>
<item Name="FI" Brief="Finnish"/>
<item Name="FR" Brief="French(Standard)"/>
<item Name="FR_BE" Brief="French(Belgian)"/>
<item Name="FR_CA" Brief="French(Canadian)"/>
<item Name="FR_CH" Brief="French(Swiss)"/>
<item Name="FR_LU" Brief="French(Luxembourg)"/>
<item Name="GD" Brief="Gaelic(Scots)"/>
<item Name="GD_IE" Brief="Gaelic(Irish)"/>
<item Name="DE" Brief="German(Standard)"/>
<item Name="DE_CH" Brief="German(Swiss)"/>
<item Name="DE_AT" Brief="German(Austrian)"/>
<item Name="DE_LU" Brief="German(Luxembourg)"/>
<item Name="DE_LI" Brief="German(Liechtenstein)"/>

```
<item Name="EL" Brief="Greek"/>
<item Name="HE" Brief="Hebrew"/>
<item Name="HI" Brief="Hindi"/>
<item Name="HU" Brief="Hungarian"/>
<item Name="IS" Brief="Icelandic"/>
<item Name="IN" Brief="Indonesian"/>
<item Name="IT" Brief="Italian(Standard)"/>
<item Name="IT_CH" Brief="Italian(Swiss)"/>
<item Name="JA" Brief="Japanese"/>
<item Name="KO" Brief="Korean"/>
<item Name="KO_JO" Brief="Korean(Johab)"/>
<item Name="LV" Brief="Latvian"/>
<item Name="LT" Brief="Lithuanian"/>
<item Name="MK" Brief="Macedonian"/>
<item Name="MS" Brief="Malaysian"/>
<item Name="MT" Brief="Maltese"/>
<item Name="NO" Brief="Norwegian(Bokmal)"/>
<item Name="NO_NY" Brief="Norwegian(Nynorsk)"/>
<item Name="PL" Brief="Polish"/>
<item Name="PT" Brief="Portuguese(Standard)"/>
<item Name="PT_BR" Brief="Portuguese(Brazilian)"/>
<item Name="RM" Brief="Rhaeto-Romanic"/>
<item Name="RO" Brief="Romanian"/>
<item Name="RO_MO" Brief="Romanian(Moldavia)"/>
<item Name="RU" Brief="Russian"/>
<item Name="RU_MO" Brief="Russian(Moldavia)"/>
<item Name="SZ" Brief="Sami(Lappish)"/>
<item Name="SR" Brief="Serbian(Cyrillic)"/>
<item Name="SR_LA" Brief="Serbian(Latin)"/>
<item Name="SK" Brief="Slovak"/>
<item Name="SL" Brief="Slovenian"/>
<item Name="SB" Brief="Sorbian"/>
<item Name="ES" Brief="Spanish(Spain - Traditional Sort)"/>
<item Name="ES_MX" Brief="Spanish(Mexican)"/>
<item Name="ES_MS" Brief="Spanish(Spain - Modern Sort)"/>
<item Name="ES_GT" Brief="Spanish(Guatemala)"/>
<item Name="ES_CR" Brief="Spanish(Costa Rica)"/>
<item Name="ES_PA" Brief="Spanish(Panama)"/>
<item Name="ES_DO" Brief="Spanish(Dominican Republic)"/>
<item Name="ES_VE" Brief="Spanish(Venezuela)"/>
<item Name="ES_CO" Brief="Spanish(Colombia)"/>
<item Name="ES_PE" Brief="Spanish(Peru)"/>
<item Name="ES_AR" Brief="Spanish(Argentina)"/>
<item Name="ES_EC" Brief="Spanish(Ecuador)"/>
<item Name="ES_CL" Brief="Spanish(Chile)"/>
<item Name="ES_UY" Brief="Spanish(Uruguay)"/>
<item Name="ES_PY" Brief="Spanish(Paraguay)"/>
<item Name="ES_BO" Brief="Spanish(Bolivia)"/>
<item Name="ES_SV" Brief="Spanish(El Salvador)"/>
<item Name="ES_HN" Brief="Spanish(Honduras)"/>
<item Name="ES_NI" Brief="Spanish(Nicaragua)"/>
<item Name="ES_PR" Brief="Spanish(Puerto Rico)"/>
<item Name="SX" Brief="Sutu"/>
```

<item Name="SV" Brief="Swedish"/>
<item Name="SV_FI" Brief="Swedish(Finland)"/>
<item Name="TH" Brief="Thai"/>
<item Name="TS" Brief="Tsonga"/>
<item Name="TN" Brief="Tswana"/>
<item Name="TR" Brief="Turkish"/>
<item Name="UK" Brief="Ukrainian"/>
<item Name="UR" Brief="Urdu"/>
<item Name="VE" Brief="Venda"/>
<item Name="VI" Brief="Vietnamese"/>
<item Name="XH" Brief="Xhosa"/>
<item Name="JI" Brief="Yiddish"/>
<item Name="ZU" Brief="Zulu"/>
</documentation>

<msg Id="CTI_NSPK_GET_ALL_MEDIA_RADIOS_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>

<msg Id="CTI_NSPK_SET_MEDIA_RADIO_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_NET_MEDIA_RADIO Id="0x2" Key.Name="Radio upravene" Key.Genre="ROCK" Key.RegionId="0xFFFFFFFF" Key.LanguageId="DEF" Protocol="HTTP" Port="0" Url="http://www.play.cz/listen/listen.php?sh=beat&bitrate=64&stype=MP3" Uri="" Delay="10000"/>
</msg>

<msg Id="CTI_NSPK_SET_MEDIA_RADIO_REQ">
<CTI_IE_REFERENCE Ref="0x422"/>
<CTI_NSPK_IE_NET_MEDIA_RADIO Id="0" Key.Name="Moje radio nove" Key.Genre="JAZZ" Key.RegionId="0xFFFFFFFF" Key.LanguageId="CS" Protocol="HTTP" Port="0" Url="http://www.play.cz/listen/listen.php?sh=beat" Uri="" Delay="10000"/>
</msg>

<msg Id="CTI_NSPK_REMOVE_MEDIA_RADIO_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_NET_MEDIA_RADIO_ID Id="0x2"/>
</msg>

5.8 Generated playlists

Playlist's control:

1. Add generated playlist into session

Pro tento účel byl aktualizovaný IE (informacní element) v message pro pro práci se zdroji - přidán typ zdroje GEN_VIEW:

GEN_VIEW je zde jako výsledek po generování playlistů, je to seznam playlistu seřazených podle parametru.

<documentation Enum="NSPK_SES_E_SESSION_SOURCE_TYPE">
<item Name="NONE" Brief="Žádný zdroj"/>
<item Name="HW" Brief="Hardwarový zdroj (LineIn,Mic)"/>
<item Name="PLAY_LIST" Brief="Lokální play list"/>
<item Name="VIRTUAL_INPUT" Brief="Virtuální vstup"/>
<item Name="USER" Brief="Uživatel"/>
<item Name="FREE_RIDE" Brief="Uživatel pro free ride režim"/>
<item Name="PORT" Brief="Přenašeč (pro SIPové volání)"/>
<item Name="RADIO" Brief="Internetové rádio"/>
<item Name="GEN_VIEW" Brief="Generované play listy"/>
</documentation>

2. list of all generated playlist

< IE="CTI_NSPK_IE_GEN_VIEW">
<member Type="KER_T_INT" Name="GenViewId" Brief="Primární klíč"/>
<member Type="KER_P_CHAR" Name="Name" OffsetPointer="true" Brief="Jméno pohledu"/>
<member Type="KER_P_CHAR" Name="Filter" OffsetPointer="true" Brief="Použitý filtr (AUTHOR[Lou Fananek] AND ALBUM[Naserem to tam]) OR NOT AUTHOR[Karel Gott]"/>
<member Type="NETSPK_S_GEN_TAG" Name="GenTag" Brief="Tag na základě kterého vzniknul generovaný pohled (pokud vznikl ručně je zde MANUAL)"/>
<member Type="NSPK_E_SES_GEN_VIEW_STATE" Name="State" Brief="Stav generování"/>
</documentation>

<documentation IE="CTI_NSPK_IE_GEN_VIEW_MOD_DATA">
<member Type="KER_T_INT" Name="GenViewId" Brief="Primární klíč"/>
<member Type="KER_P_CHAR" Name="Name" OffsetPointer="true" Brief="Jméno pohledu"/>
<member Type="KER_P_CHAR" Name="Filter" OffsetPointer="true" Brief="Použitý filtr (AUTHOR[Lou Fananek] AND ALBUM[Naserem to tam]) OR NOT AUTHOR[Karel Gott]"/>
</documentation>

<documentation IE="CTI_NSPK_IE_GEN_VIEW_TYPE">
<member Type="NSPK_E_SES_GEN_TAG" Name="GenTag.Type" Brief="Typ tagu"/>
</documentation>

<documentation IE="CTI_NSPK_IE_GEN_VIEW_ID">
<member Type="KER_T_INT" Name="GenViewId" Brief="Primární klíč"/>
</documentation>

<documentation Enum="NSPK_E_SES_GEN_VIEW_STATE">
<item Name="SYNTAX_ERROR" Brief="V řetězci filter je syntaktická chyba"/>
<item Name="WAIT_GENERATE" Brief="Čeká na přegenerování"/>
<item Name="GENERATING" Brief="Právě probíhá generování této položky"/>
<item Name="GENERATED" Brief="View bylo dogenerován a je připraveno k použití"/>
</documentation>

<documentation struct="NETSPK_S_GEN_TAG">
<member Type="NSPK_E_SES_GEN_TAG" Name="Type" />
<member Type="KER_T_INT" Name="Id" />
</documentation>

<documentation Enum="NSPK_E_SES_GEN_TAG">
<item Name="ALL" Brief="Vše"/>
<item Name="MANUAL" Brief="Pouze pro view, říká že záznam vzniknul manuálně"/>
<item Name="FILE" Brief="Jméno souboru"/>
<item Name="YEAR" Brief="Rok"/>
<item Name="COMMENT" Brief="Komentář"/>
<item Name="TITLE" Brief="Titul"/>
<item Name="TRACK" Brief="Číslo stopy"/>
<item Name="DIR" Brief="Adresář"/>
<item Name="ARTIST" Brief="Umělec"/>
<item Name="ALBUM" Brief="Album"/>
<item Name="GENRE" Brief="Žánr"/>
</documentation>

3. list of all files in generated playlist:

<documentation IE="CTI_NSPK_IE_GEN_VIEW_FILE">
<member Type="KER_T_INT" Name="GenViewId" Brief="Primární klíč (odkaz do tabulky GEN_VIEW)"/>
<member Type="KER_T_INT" Name="GenViewFileId" Brief="Primární klíč (zároveň je odkaz do tabulky GEN_FILE)"/>
<member Type="KER_P_CHAR" Name="Description" OffsetPointer="true" Brief="Popis pro admina (aby nemusel načítat obří DB)"/>
<member Type="KER_T_INT" Name="Duration" Brief="Délka v [ms] pouze pro admina (aby nemusel načítat obří DB)"/>
<member Type="KER_T_U32" Name="Shuffle" Brief="Bitové dirty pole, do kterého se ukládá zda byl daný soubor přehrán pro dané shuffle id"/>
</documentation>

<msg Id="CTI_NSPK_GET_ALL_GEN_VIEWS_FILES_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>

<msg Id="CTI_NSPK_GET_GEN_VIEWS_FILES_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_NSPK_IE_GEN_VIEW_ID GenViewId="75"/>
</msg>

4. Set of root directory which will be used for generating playlists:

<documentation IE="CTI_NSPK_IE_GEN_DIR">
<member Type="KER_T_INT" Name="GenDirId" Brief="Primární klíč"/>
<member Type="KER_P_CHAR" Name="Name" OffsetPointer="true" Brief="Jméno tohoto záznamu"/>
<member Type="KER_P_CHAR" Name="Directory" OffsetPointer="true" Brief="Adresář, ze kterého se soubory berou"/>

<member Type="KER_P_CHAR" Name="Extensions" OffsetPointer="true" Brief="Přípony souborů oddělené čárkou"/>
<member Type="KER_T_U32" Name="Flags" Brief="Flagy dle NSPK_SEST_E_GEN_DIRS_FLAGS"/>
<member Type="NSPK_E_SES_GEN_DIR_STATE" Name="State" Brief="Stav generování"/>
</documentation>

<documentation IE="CTI_NSPK_IE_GEN_DIR_NAME">
<member Type="KER_T_INT" Name="GenDirId" Brief="Primární klíč"/>
<member Type="KER_P_CHAR" Name="Name" OffsetPointer="true" Brief="Jméno tohoto záznamu"/>
</documentation>

<documentation IE="CTI_NSPK_IE_GEN_DIR_ID">
<member Type="KER_T_INT" Name="GenDirId" Brief="Primární klíč"/>
</documentation>

<documentation Bitfield="NSPK_SEST_E_GEN_DIRS_FLAGS">
<item Value="0x01" Brief="SUBDIRS - Generují se i vnořené adresáře"/>
<item Value="0x02" Brief="DELETE - Tento flag se nastaví v momentě, kdy je potřeba smazat tento adresář"/>
<item Value="0x04" Brief="GENRE - Vytvoří pohled pro žánry"/>
<item Value="0x08" Brief="ARTIST - Vytvoří pohled pro autory"/>
<item Value="0x10" Brief="DIR - Vytvoří pohled pro adresáře"/>
<item Value="0x20" Brief="ALBUM - Vytvoří pohled pro alba"/>
</documentation>

<documentation Enum="NSPK_E_SES_GEN_DIR_STATE">
<item Name="GENERATED" Brief="Adresář byl dogenerován a je připraven k použití"/>
<item Name="GENERATING" Brief="Právě probíhá generování této položky"/>
<item Name="WAIT_GENERATE" Brief="Čeká na přegenerování"/>
<item Name="INCLUDED" Brief="Tento adresář je již obsažrn v jiném řádku"/>
<item Name="INCLUDING" Brief="Probíha includování (mazání) obsahu"/>
<item Name="WAIT_INCLUDE" Brief="Čeká na přegenerování pro obsažený adresář (bude se mazat ID)"/>
<item Name="DELETING" Brief="Probíhá mazání souborů z tohoto adresáře"/>
<item Name="WAIT_DELETE" Brief="Čeká na výmaz"/>
</documentation>

<msg Id="CTI_NSPK_GET_ALL_GEN_DIRS_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>

<msg Id="CTI_NSPK_INSERT_GEN_DIR_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_GEN_DIR GenDirId="0" Name="Muj GEN DIR novy" Directory="D:\Hudba\Kabat\"/>
</msg>

<msg Id="CTI_NSPK_MODIFY_GEN_DIR_REQ">
<CTI_IE_REFERENCE Ref="0x422"/>
<CTI_NSPK_IE_GEN_DIR_NAME GenDirId="0x4" Name="Muj GEN DIR upraveny"/>
</msg>

<msg Id="CTI_NSPK_REMOVE_GEN_DIR_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>

<CTI_NSPK_IE_GEN_DIR_ID GenDirId="0x4"/>
</msg>

5. Construction of filter for generated playlits Gen_VIEW

ALL
FILE
YEAR
COMMENT
TITLE
TRACK
DIR
ARTIST
ALBUM
GENRE

FILE.IS
COMMENT.IS
TITLE.IS
DIR.IS
ARTIST.IS
ALBUM.IS
GENRE.IS

Oparetors AND OR NOT are allowed to use in filter construction, use [] for

(FILE[Karel] OR NOT FILE[Gott]) AND ALBUM.IS[Krasny les]

!!!If string contains right square bracket -] - then this bracket has to be replaced by two right square brackets -]]. So string: 'Karel [2000] prvni' will be used as: ARTIST[Karel [2000]] prvni]
-->

<msg Id="CTI_NSPK_GET_ALL_GEN_VIEWS_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>

<msg Id="CTI_NSPK_GET_GEN_VIEWS_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_NSPK_IE_GEN_VIEW_TYPE GenTag_Type="ARTIST"/>
</msg>

<msg Id="CTI_NSPK_INSERT_GEN_VIEW_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_GEN_VIEW_MOD_DATA GenViewId="0" Name="Muj GEN VIEW novy" Filter="AUTHOR[Karel Gott]"/>
</msg>

<msg Id="CTI_NSPK_MODIFY_GEN_VIEW_REQ">
<CTI_IE_REFERENCE Ref="0x422"/>
<CTI_NSPK_IE_GEN_VIEW_MOD_DATA GenViewId="0x50" Name="Muj GEN VIEW upraveny" Filter="AUTHOR[Lou Fananek]"/>
</msg>

<msg Id="CTI_NSPK_REMOVE_GEN_VIEW_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_GEN_VIEW_ID GenViewId="0x50"/>
</msg>

5.9 IP Audio System HTTP API manual

Control of Sessions via http commands is supported by 2N® NetSpeaker server. Sample command:

Request
http://nspk_addr:port/httpAPI.xml?session=1&state=ON&volume=10&mut

Where:

- nspk_addr - is IP addres of NetSpeaker Server or its network domain
- port - is port in which NetSPeaker server listens for HTTP comands
- session - indicates session ID
- state - switch the session on/off
- volume - set volume, possible parameters <0 - 4096>
- mute - switch the session's sound on or off
- channel - set channel, range <1 - 4>
- priority - set priority of session, range <1 - 9>

Sample of response:

Response

```
<?xml version="1.0" encoding="UTF-8"?>
<callctrl-result>
<errcode>0</errcode>
</callctrl-result>
```

If erroror ocures the errorcode will be 1.

Default port is 8088, it is possible to change it via ControlPanel.

6. Supported Internet Radio Stations

Canada

Radio	URI	Comment
CJSW	http://stream.cjsw.com/cjsw.mp3.m3u	
CHRW	http://chrwradio.com/playlist/stream.m3u	

Czech republic

Radio	URI	Comment
Český rozhlas 1 - Radiožurnál	Link	
Český rozhlas 2	Link	
Český rozhlas 3	Link	
ČRo D-dur	Link	
ČRo Jazz	Link	
ČRo Wave	Link	
Evropa2	Link	
Frekvence 1	Link	
Radio Bonton	Link	
Impuls	Link	
Radio Orlik	Link	
Rock Zone	Link	
Radio Dechovka	Link	
Radio Blanik	Link	

Denmark

Radio	URI	Comment
Danmarks Radio P1	http://live-icy.gss.dr.dk:8000/Channel3_HQ.mp3.m3u	
Danmarks Radio P2	http://live-icy.gss.dr.dk:8000/Channel4_HQ.mp3.m3u	
Danmarks Radio P3	http://live-icy.gss.dr.dk:8000/Channel5_HQ.mp3.m3u	
DR P4 Bornholm	http://live-icy.gss.dr.dk:8000/Channel6_HQ.mp3.m3u	
DR P4 Esbjerg	http://live-icy.gss.dr.dk:8000/Channel15_HQ.mp3.m3u	
DR P4 Fyn	http://live-icy.gss.dr.dk:8000/Channel7_HQ.mp3.m3u	
DR P4 Kobenhavn	http://live-icy.gss.dr.dk:8000/Channel8_HQ.mp3.m3u	
DR P8 Jazz	http://live-icy.gss.dr.dk:8000/Channel22_HQ.mp3.m3u	
DR Ramasjang Radio	http://live-icy.gss.dr.dk:8000/A/A24H.mp3.m3u	
Radio Klassisk	http://onair.100fmlive.dk/klassisk_live.mp3.m3u	

Finland

Radio	URI	Comment
Radio Sun	http://app1.downtime.fi/sun.mp3.m3u	
Radio REX	http://media.innoventum.fi:8000/radiorex.m3u	not supported
Basso Radio	http://www.basso.fi/bassostreami.m3u	
Groove FM	http://217.30.180.242:8000/gvfm.mp3.m3u	
Iskelmä	http://www.iskelma.fi/nettiradio/iskelma.m3u	
Järviradio	http://radio.6net.fi:8000/jarviradio.m3u	
Metro FM	http://217.30.180.242:8000/mrfm.mp3.m3u	
NRJ	http://149.5.240.22/WR-FI-finland.m3u	
NRJ Hip-Hop	http://149.5.240.22/WR-FI-HIPHOP.m3u	
NRJ Suomihitit	http://149.5.240.22/WR-FI-WR10.m3u	
NRJ RNB	http://149.5.240.22/WR-FI-RNB.m3u	
NRJ POP	http://149.5.240.22/WR-FI-POP.m3u	
Oi FM	http://media.innoventum.fi:8000/oifm.m3u	
NRJ HIT	http://149.5.240.22/WR-FI-HIT.m3u	
Radio 957	http://www.radio957.fi/nettiradio/957.m3u	
Radio Aalto	http://www.listenlive.eu/aalto.m3u	
Iskelmä	http://www.iskelma.fi/nettiradio/iskelma.m3u	

Iceland

Radio	URI	Comment
Útvarp Kántrýbar	http://93.95.74.162:8000/listen.pls	not supported

Norway

Radio	URI	Comment
NRK P1 Finnmark	http://lyd.nrk.no/nrk_radio_p1_finnmark_mp3_m.m3u	
NRK P1 Nordland	http://lyd.nrk.no/nrk_radio_p1_nordland_mp3_m.m3u	
NRK P2	http://lyd.nrk.no/nrk_radio_p2_mp3_m.m3u	
NRK P3 Urort	http://lyd.nrk.no/nrk_radio_p3_urort_mp3_m.m3u	
NRK P3	http://lyd.nrk.no/nrk_radio_p3_mp3_m.m3u	
NRK Jazz	http://lyd.nrk.no/nrk_radio_jazz_mp3_m.m3u	
NRK Klassisk	http://lyd.nrk.no/nrk_radio_klassisk_mp3_m.m3u	
NRK Sport	http://lyd.nrk.no/nrk_radio_sport_mp3_m.m3u	
P5 Oslo	http://mms-live.online.no/P5_Oslo.m3u	

United Kingdom

Radio	URI	Comment
Big L 1395	http://eastlondonradio.com:8100/biglh.mp3.m3u	
Bolton FM	http://icecast.commedia.org.uk:8000/boltonfm.mp3.m3u	
Choice FM	http://media-ice.musicradio.com/ChoiceFMMP3.m3u	
Demon FM	http://live.demonfm.co.uk:8000/demon.m3u	
Gold	http://media-ice.musicradio.com/GoldMP3.m3u	
Insight Radio	http://icy-e-03.sharp-stream.com/insightradio.mp3.m3u	
North Manchester FM	http://live.canstream.co.uk:8000/manchesterfm.mp3.m3u	
Queen's Radio	http://quis.qub.ac.uk:8080/qrlivehi.m3u	
Two Lochs Radio	http://icecast.commedia.org.uk:8000/twolochs.mp3.m3u	
The Source FM	http://live.canstream.co.uk:8000/sourcefm.mp3.m3u	

USA

Radio	URI	Comment
KAJX - Aspen Public Radio	http://peace.str3am.com:6880/kajxhi.m3u	
KALX	http://icecast.media.berkeley.edu:8000/kalx-128.mp3.m3u	
KMFA	http://pubint.ic.llnwd.net/stream/pubint_kmfa.m3u	
KUHF	http://129.7.48.199/KUHF-HD1-128K.m3u	

Slovakia

Radio	URI	Comment
SRO Rádio Slovensko	http://live.slovakradio.sk:8000/Slovensko_128.mp3.m3u	
SRO Rádio _FM	http://live.slovakradio.sk:8000/FM_128.mp3.m3u	
SRO Radio Slovakia International	http://live.slovakradio.sk:8000/RSI_128.mp3.m3u	
Fun Radio	http://stream.funradio.sk:8000/fun128.mp3.m3u	
Rádio Prešov	http://www.radiopresov.sk/lib/jorbis/64.mp3.m3u	
Rádio Frontinus	http://www.frontinus.sk/frontinus128.m3u	

Sweden

Radio	URI	Comment
Sveriges Radio P1	http://sverigesradio.se/topsy/direkt/132-hi-mp3.m3u	not supported
Lite FM	http://www.litefm.se/live.m3u	
Radio Guld	http://audiostream.picsearch.com:8000/radioguld.m3u	
Tidaholm FM	http://radio.fnf.nu:443/radiotidaholm.mp3.m3u	

7. 2N® NetSpeaker Limits and Specifications

- **Supported OS**
  - **2N® NetSpeaker Server**
    - WIN XP SP3 - Not recommended
    - WIN VISTA 32/64 bit
    - WIN 7 32/64 bit
    - WIN Server 2008 R2*
    - WIN 8 - Not recommended
  - **2N® NetSpeaker Console**, **2N® NetSpeaker Player**
    - WIN XP - Not recommended
    - WIN VISTA 32/64 bit
    - WIN 7 32/64 bit
    - WIN 8 - Not recommended yet
  - **Necessary conditions**
    - Windows Media Player 11
    - The Microsoft Visual C + + 2008 Redistributable Package (x86) – installation is required, otherwise you will have problems with stability
    - Microsoft. NET Framework 4 r-distributable package
    - *Desktop Experience feature is required on Windows Server
    - Windows Firewall service running, in other case rules for 2N® NetSpeaker application has to be added manually
- **VoIP:**
  - Registration No.: Counterparty calls on the IP address of **2N® NetSpeaker** predefined server and port for the VoIP trunk (eg 5061).
  - Registration: **2N® NetSpeaker** only client netspeaker registering in the PBX. It cannot switch to mode = SIP registrar proxy (no phones register to it).

- **2N® NetSpeaker SD Card**

Type	Maximum tested size
SD	2G
SDHC	32GB
SDX	2G

Sample of transfer rates	Allocation unit size			
	default	**16kB**	**32kB**	**64kB**
SanDisk UHC-I 4GB	660kbps		1142kbps	-
Kingston HC class 10 16GB	850kbps		600kbps	987kbps
Patriot HC class 4 16GB	1050kbps		1159kbps	1230kbps
Noname HC class 4 4GB	117kbps		590kbps	-

- **Communication Protocols**
  - ControlPanel >> Server – server listenes on port 6990, proprietary protocol
  - Console >> Server – server listenes on port 6990, proprietary protocol
  - Player >> Server – server listenes on port 6990, proprietary protocol
  - Server >> NSPK unit – NSPK unit listenes on port 6998, proprietary protocol
  - NSPK unit >> Server – server listenes on port 6999, proprietary protocol
- **Telnet**
  - In version 1.1.1 and higher, TELNET is off by default immediately after connecting to the **2N® NetSpeaker Server**. After disconnecting from the server, TELNET is re–activated. If you want to enable TELNET even when **2N® NetSpeaker** is connected to the server, you must enable this in Destinations and Zones tab in the Control Panel.
- **Minimal transfer rates**

	option	transfer Server -> NetSpeaker	transfer NetSpeaker -> Server
unicast	32kbps mono	100kbps/unit	60kbps/unit
	64kbps mono	135kbps/unit	60kbps/unit
	128kbps mon/ster	190kbps/unit	60kbps/unit
multicast	32kbps mono	70kbps/group	-
	64kbps mono	100kbps/group	-
	128kbps mon/ster	145kbps/group	-

Test Results

HW – CPU, Chipset	Intel Atom Z530	Intel XEON E5645
WIN VISTA – MAX number of session/streamu/NSPK	WIN VISTA – 5/5/20	-
WIN 7 – MAX number of session/streamu/NSPK	WIN 7 – 6/6/20	-
WIN 8 – MAX number of session/streamu/NSPK	WIN 8 – 6/6/20	-
Win Server 2008 R2	-	100/1000/1000
Počet uživatelů	1000	10000
Počet SIP trunků/současných hovorů	10/2	100/100

8. Supplementary Information

This section contains supplementary information required by regional authorities.

- 8.1 Directives, Laws and Regulations
- 8.2 General Instructions and Cautions

8.1 Directives, Laws and Regulations

CE

2N® Helios IP Force conforms to the following directives and regulations:

- Directive 1999/5/EC of the European Parliament and of the Council, of 9 March 1999 – on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity
- Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits
- Directive 2004/108/EC of the Council of 15 December 2004 on the harmonisation of the laws of Member States relating to electromagnetic compatibility
- Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
- Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment.
- Commission Regulation (EC) No. 1275/2008, of 17 December 2008, implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment

Industry Canada

This Class B digital apparatus complies with Canadian ICES-003. / Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

FC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to

radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Caution

- Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- Always use the product for the purpose it was designed and manufactured for, in compliance herewith.
- The manufacturer reserves the right to modify the product in order to improve its qualities.
- This device contains no environmentally harmful components. When the product's service life is exhausted and you would like to dispose of it please do so in accordance with applicable legal regulations.

8.2 General Instructions and Cautions

- Please read this User Manual carefully before using the product. Follow all instructions and recommendations included herein.
- Any use of the product that is in contradiction with the instructions provided herein may result in malfunction, damage or destruction of the product.
- The manufacturer shall not be liable and responsible for any damage incurred as a result of a use of the product other than that included herein, namely undue application and disobedience of the recommendations and warnings in contradiction herewith.
- Any use or connection of the product other than those included herein shall be considered undue and the manufacturer shall not be liable for any consequences arisen as a result of such misconduct.
- Moreover, the manufacturer shall not be liable for any damage or destruction of the product incurred as a result of misplacement, incompetent installation and/or undue operation and use of the product in contradiction herewith.
- The manufacturer assumes no responsibility for any malfunction, damage or destruction of the product caused by incompetent replacement of parts or due to the use of reproduction parts or components.
- The manufacturer shall not be liable and responsible for any loss or damage incurred as a result of a natural disaster or any other unfavourable natural condition.
- The manufacturer shall not be held liable for any damage of the product arising during the shipping thereof.
- The manufacturer shall not make any warrant with regard to data loss or damage.
- The manufacturer shall not be liable and responsible for any direct or indirect damage incurred as a result of a use of the product in contradiction herewith or a failure of the product due to a use in contradiction herewith.
- All applicable legal regulations concerning the product installation and use as well as provisions of technical standards on electric installations have to be obeyed. The manufacturer shall not be liable and responsible for damage or destruction of the product or damage incurred by the consumer in case the product is used and handled contrary to the said regulations and provisions.
- The consumer shall, at its own expense, obtain software protection of the product. The manufacturer shall not be held liable and responsible for any damage incurred as a result of the use of deficient or substandard security software.
- The consumer shall, without delay, change the access password for the product after installation. The manufacturer shall not be held liable or responsible for any damage incurred by the consumer in connection with the use of the original password.
- The manufacturer also assumes no responsibility for additional costs incurred by the consumer as a result of making calls using a line with an increased tariff.

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